



Organics

January 9, 2004

VIA CERTIFIED MAIL

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**Re: DECEMBER 2003 MONTHLY REPORT
RI/FS & REMOVAL ACTION
NEASE CHEMICAL SITE
SALEM, OHIO**

In accordance with Paragraph X E of the Administrative Order by Consent regarding a Remedial Investigation/Feasibility Study (RI/FS) of the Nease Chemical Site in Salem, Ohio, attached is a copy of the December 2003 RI/FS Progress Report

Additionally, in accordance with Paragraph 14 of the Administrative Order by Consent, signed November 17, 1993, attached is a copy of the December 2003 Removal Action Progress Report.

Please contact us if you have any questions regarding activities discussed in these reports.

Sincerely,

Dr. Rainer F. Domalski
Manager Remediation Projects

Enclosure

cc: M. Hardy – Thompson Hine
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**NEASE CHEMICAL SITE, SALEM, OHIO
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
MONTHLY PROGRESS REPORT
DECEMBER 2003**

1.0 INTRODUCTION

This progress report has been prepared in accordance with Paragraph XE of the Administrative Order of Consent regarding a Remedial Investigation/Feasibility Study of the Nease Chemical Site in Salem, Ohio. The report summarizes the major RI/FS actions during the month along with investigation results and any problems encountered in the project. Activities planned for next month are also presented.

2.0 SUMMARY OF ACTIVITIES PERFORMED

2.1 Project Activity Summary

The activities that were initiated and/or completed during the month are described. All activities were performed in accordance with the detailed protocol provided in the approved Work Plan.

2.2 Fieldwork

No fieldwork occurred during this month.

2.3 Reports

2.3.1 Remedial Investigation - Endangerment Assessment (EA)

Based on 2002 comments from the agencies, a revised Endangerment Assessment was submitted in April (Chapter I through VIII; Health) and June 2003 (Chapter IX and X; Ecological). It is currently under agencies' final review.

On March 18, 2003, the agencies and ROC had a meeting regarding the upcoming Feasibility Study (FS). The parties discussed site conceptual model, proposed operational units (OU 1- 4), remedial actions objectives and technology screening. A follow-up meeting was held on October 15, 2003. ROC presented the results from July 2003 groundwater sampling round and its meaning for the site remediation. The parties also discussed the Remedial Action Objectives and the remedial alternatives to be evaluated in the final draft FS. The agencies will comment on the proposed alternatives by the end of November. A final draft is planned for the first quarter 2004.

2.4 Meetings

No meeting was held during this month.

3.0 **VARIATIONS FROM THE APPROVED RI/FS WORK PLAN**

No variations from the approved Work Plans occurred during the month.

4.0 **RESULTS OF SAMPLING, TESTS AND ANALYSES**

No sampling was conducted during this month.

5.0 **PROJECT SCHEDULE**

The attached updated Work Plan schedule identifies completion and target dates for project activities. Those scheduled to occur over the next several months include:

- Prepare Feasibility Study (OU-2; groundwater and soil)

6.0 **DIFFICULTIES ENCOUNTERED AND ACTION TAKEN TO RESOLVE PROBLEMS**

No significant difficulties were encountered.

7.0 **PERSONNEL CHANGES**

No changes occurred during this month.

8.0 **ANTICIPATED PROJECT ACTIVITIES FOR JANUARY 2004**

- Monthly Progress Report December 2003
- Prepare Feasibility Study (OU-2)

Table 1
Nease Chemical Site, Salem, Ohio
RI/FS Schedule

Date	Task/Activity/Deliverable/Milestone
February 22, 1988	Effective Date of RI/FS Administrative Order of Consent
April 5, 1991	Partial Salem RI submitted to Agencies
July 6, 1993	Salem RI submitted to Agencies
July 29-30, 1993	Source sampling event, ROC/Golder and Agencies/B&V WST
August 10, 1993	Submit monthly progress report
September 10, 1993	Submit monthly progress report
October 10, 1993	Submit monthly progress report
November 10, 1993	Submit monthly progress report
Nov./Dec., 1993	Egypt Swamp Sampling Event
December 10, 1993	Submit monthly progress report
January 10, 1994	Submit monthly progress report
February 10, 1994	Submit monthly progress report
March 10, 1994	Submit monthly progress report
March 30, 1994	Submit Supplemental Production Well Closure Plan to Agencies
April 10, 1994	Submit monthly progress report
May 10, 1994	Submit monthly progress report
June 10, 1994	Submit monthly progress report
July 10, 1994	Submit monthly progress report
August 10, 1994	Submit monthly progress report
August 18, 1994	Submit to Agencies Additional RI Report: MFLBC
August 22, 1994	Receipt of US EPA Draft Comments on 1993 Salem RI Report
September 6, 1994	Receipt of US EPA Comments on 1993 Salem RI Report
September 10, 1994	Submit monthly progress report
September 23, 1994	Receipt of USEPA Comments on Well Closure Plan
October 7, 1994	Submit Supplemental Production Well Closure Plan (Revision #1)
October 10, 1994	Submit monthly progress report
November 8, 1994	Receipt of USEPA approval of Well Closure Plan (Revision #1)
November 10, 1994	Submit monthly progress report
December 10, 1994	Submit monthly progress report
December 13-19, 1994	Production Well Closure Field Work
January 10, 1995	Submit monthly progress report
February 10, 1995	Submit monthly progress report
February 27, 1995	Receipt of USEPA Comments to Additional Remedial Investigation Report
March 10, 1995	Submit monthly progress report
March 30, 1995	Revised MFLBC Sampling Plan submitted
April 10, 1995	Submit monthly progress report
April 25, 1995	Meet to finalize MFLBC Sampling Plan
May 10, 1995	Submit monthly progress report

Date	Task/Activity/Deliverable/Milestone
June 6, 1995	Propose groundwater sampling Round 3
June 10, 1995	Submit monthly progress report
June 30, 1995	Receive agency comments to groundwater sampling Round 3 proposal
July 5, 1995	Receive agency approval of MFLBC Sampling Plan
July 6, 1995	Submit revised Round 3 groundwater sampling proposal
July 10, 1995	Submit monthly progress report
August 1, 1995	Receive Agency approval for CAL MPK analysis
August 4, 1995	Submit Rt. 14/Feeder Creek Plan to Agencies
August 10, 1995	Submit monthly progress report
September 5-15, 1995	Anticipated MFLBC phase III Sample Collection
September 10, 1995	Submit monthly progress report
September 12, 1995	Receive agency comments on Rt. 14/Feeder Creek Sampling Plan
September 18-30, 1995	Round 3 Groundwater Collection
October 6, 1995	Submit revised Rt. 14/Feeder Creek Sampling Plan
October 25, 1995	Resubmit revised Rt. 14/Feeder Creek Sampling (Verbal Comments)
October 30-	Collect Rt. 14/Feeder Creek Samples
November 2, 1995	
November 10, 1995	Submit monthly progress report
December 10, 1995	Submit monthly progress report
December 28, 1995	Receive Agency comments to Remedial Investigation Report
January 10, 1996	Submit monthly progress report
January 31, 1996	Submit Revised RI Report Volumes 1, 1A, 3 and 4
February 10, 1996	Submit monthly progress report
March 10, 1996	Submit monthly progress report
April 10, 1996	Submit monthly progress report
April 24, 1996	Meeting with agencies to discuss project status and submittal dates
May 10, 1996	Submit monthly progress report
May 24, 1996	Submit Appendix N
June 10, 1996	Submit monthly progress report
June 14, 1996	Submit Round 3 Groundwater Sampling Data
June 19, 1996	Revised RI Approved by EPA/OEPA
July 10, 1996	Submit monthly progress report
August 10, 1996	Submit monthly progress report
September 6, 1996	Submit monthly progress report
September 11, 1996	Meeting with Agencies to discuss Endangerment Assessment Comments
October 10, 1996	Submit monthly progress report, Submit revised Rt. 14/FC Investigation Results, Submit revised Eastern Plume/DNAPL Work Plan
November 10, 1996	Submit monthly progress report
December 10, 1996	Submit monthly progress report
December, 1996	Complete Fieldwork E. Plume/DNAPL Workplan
January 10, 1997	Submit monthly progress report
January 23, 1997	Piezometer (hydropunch) sampling conducted
February 7, 1997	Submit monthly progress report

Date	Task/Activity/Deliverable/Milestone
March 7, 1997	Submit monthly progress report
March 25, 1997	Receive agency comments on E. Plume/DNAPL Workplan
April 10, 1997	Submit monthly progress report
May 9, 1997	Submit monthly progress report
June 9, 1997	Submit monthly progress report
June 30, 1997	Receive Agency comments on Appendix N, RI
July 8, 1997	Submit monthly progress report
July 18, 1997	Submit revision package for Appendix N addressing agency comments
August 8, 1997	Submit DNAPL/Eastern Plume Report and Monthly progress report
August 20, 1997	Agency approval of Appendix N
September 10, 1997	Submit monthly progress report
October 10, 1997	Submit monthly progress report
November 10, 1997	Submit monthly progress report
December 10, 1997	Submit monthly progress report
December 18, 1997	Receive (12/19/97) agency comments to previously submitted EA chapters
December 18, 1997	Receive (12/29/97) USEPA Comments to Eastern Plume/DNAPL report
December 29, 1997	Receive (12/31/97) OEPA Comments to Eastern Plume/DNAPL report
January 8, 1998	Clarifications to agency EA comments requested by ROC letter
January 9, 1998	Submit monthly progress report
January 13, 1998	Telephone conference to obtain clarification on agency EA comments (human health)
January 22, 1998	Meeting in US EPA's Chicago offices to discuss Eastern Plume/DNAPL report comments
January 28, 1998	Telephone conference to obtain clarifications on agency EA comments
January 29, 1998	Telephone conference to obtain clarifications on agency EA comments (Ecological and revision schedule)
February 3, 1998	ROC letter regarding summary of previous EA clarification telephone calls
February 10, 1998	Submit monthly progress report
February 12, 1998	Meeting in Twinsburg, OH to discuss agency comment to EA chapters and approach for finalization of remaining chapters.
March 10, 1998	Submit monthly progress report
April 1, 1998	Receive USEPA comments to revised Eastern Plume/DNAPL report
April 8, 1998	Submit monthly progress report
April 15, 1998	Submit Complete EA
May 7, 1998	Submit monthly progress report
June 9, 1998	Submit monthly progress report
July 10, 1998	Submit monthly progress report
August 5, 1998	Revised Eastern Plume/DNAPL report submitted
August 7, 1998	Submit monthly progress report
August 14, 1998	Receive draft agency comments on EA
August 26, 1998	Meeting in Twinsburg, Ohio to discuss EA comments
September 10, 1998	Submit monthly progress report
October 8, 1998	Meeting to discuss EA technical issues (EPA office, Chicago)
October 9, 1998	Submit monthly progress report

Date	Task/Activity/Deliverable/Milestone
November 6, 1998	Teleconference on EA comments
November 10, 1998	Submit monthly progress report
November 30, 1998	Receive additional agency comments on EA
December 10, 1998	Submit monthly progress report
December 15, 1998	Teleconference on EA comments
January 6, 1999	Teleconference on EA comments (remaining item information status)
January 8, 1999	Submit monthly progress report
January 22, 1999	Submit EA Appendices
February 3, 1999	Agency MFLBC Sampling Letter received
February 9, 1999	Receive partial agency comments to EA/Appendices
February 10, 1999	Submit monthly progress report
February 23, 1999	ROC responds to MFLBC Sampling proposal
March 9, 1999	Submit monthly progress report
March 16, 1999	Receive additional agency comments to EA/Appendices, more anticipated
April 8, 1999	Receive final agency comments to EA/Appendices
April 9, 1999	Submit monthly progress report
May 10, 1999	Submit monthly progress report
May 17, 1999	Agency response letter to ROC MFLBC sampling proposal received
June 7, 1999	Conference call to resolve details on MFLBC sampling program and locations
June 9, 1999	Submit monthly progress report
June 18, 1999	Submit revised EA
July 9, 1999	Submit monthly progress report
July 12-21, 1999	Conduct additional MFLBC field sampling work
July 28, 1999	ROC proposal for Residential well sampling program via a conference call
August 8, 1999	Submit monthly progress report
September 1, 1999	Agency approval of residential well sampling program via a conference call
September 10, 1999	Submit monthly progress report
October 8, 1999	Submit monthly progress report
November 8, 1999	Submit monthly progress report
December 9, 1999	Submit monthly progress report
January 10, 2000	Submit monthly progress report
January 11, 2000	Conduct Residential Well Sampling Program
February 10, 2000	Submit monthly progress report
March 8, 2000	Submit monthly progress report
March 31, 2000	Submit MFLBC Data Summary Report
April 4, 2000	Submit monthly progress report
May 10, 2000	Submit monthly progress report
June 7, 2000	Submit Residential Well Sampling Results
June 8, 2000	Submit monthly progress report
July 7, 2000	Submit monthly progress report
July 31, 2000	Received agency comment letter regarding draft Endangerment

Date	Task/Activity/Deliverable/Milestone
	Assessment
August 8, 2000	Submit monthly progress report
September 8, 2000	Submit monthly progress report
October 4, 2000	Submit monthly progress report
October 11, 2000	Agencies/ROC meeting regarding agency's comments to draft Endangerment Assessment
November 3, 2000	Submit monthly progress report
November 14, 2000	Submit parts of the revised Endangerment Assessment (Chapter 1 – 4, 9)
December 8, 2000	Submit monthly progress report
December 12, 2000	Submit parts of the revised Endangerment Assessment (Chapter 10)
January 4, 2001	Submit monthly progress report
February 6, 2001	Submit monthly progress report
March 8, 2001	Submit monthly progress report
April 9, 2001	Submit monthly progress report
April 11, 2001	Received agencies' comments regarding Appendix I
May 8, 2001	Submit monthly progress report
May 18, 2001	Received agencies' comments regarding Appendix I
June 6, 2001	Submit monthly progress report
July 6, 2001	Submit monthly progress report
August 7, 2001	Submit monthly progress report
August 20, 2001	Received agencies' comments regarding indoor air
September 7, 2001	Received agencies' comments regarding dermal exposure
September 10, 2001	Submit monthly progress report
September 18, 2001	Initial response to agencies' September 7, 2001 letter
October 5, 2001	Submit Monthly progress report
October 19, 2001	Received agencies' comment letter regarding EA issues
November 2, 2001	Response to agencies' comments October 19, 2001
November 7, 2001	Submit monthly progress report
December 7, 2001	Submit monthly progress report
December 28, 2001	Submit draft final Endangerment Assessment (Human Health)
January 9, 2001	Submit monthly progress report
January 25, 2002	Submit revised EA Chapters VI and VIII
February 8, 2002	Submit monthly progress report
March 5, 2002	Submit monthly progress report
April 5, 2002	Submit monthly progress report
May 8, 2002	Submit monthly progress report
June 5, 2002	Submit monthly progress report
July 8, 2002	Submit monthly progress report
August 9, 2002	Submit monthly progress report
August 26, 2002	EPA submit comments regarding ecological part of EA
September 10, 2002	Submit monthly progress report
October 10, 2002	Submit monthly progress report
October 30, 2002	Submit Draft Endangerment Assessment (Human Health Part)
November 6, 2002	Submit monthly progress report
December 3, 2002	Meeting with the agencies regarding the ecological part of the EA
December 10, 2002	Submit monthly progress report
December 30, 2002	Agency comment letter regarding EA
January 9, 2003	Submit progress report
February 5, 2003	Submit monthly progress report
March 18, 2003	Meeting between agencies and ROC regarding FS
March 19, 2003	Submit monthly progress report

Date	Task/Activity/Deliverable/Milestone
April 7, 2003	Submit monthly progress report
April 25, 2003	Submit revised EA Chapter I – VIII (Human Health)
May 7, 2003	Submit monthly progress report
June 10, 2003	Submit monthly progress report
June 23, 2003	Submit revised EA Chapter IX and X (Ecology)
July 8, 2003	Submit monthly progress report
July 21, 2003	Start groundwater sampling (36 MW, sandbank)
August 8, 2003	Submit monthly progress report
September 5, 2003	Submit monthly progress report
October 8, 2003	Submit monthly progress report
October 15, 2003	Meeting between agencies and ROC (FS groundwater and soil)
October 10, 2003	Submit monthly progress report
November 10, 2003	Submit monthly progress report
December 8, 2003	Submit monthly progress report
January 9, 2004	Submit monthly progress report

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**NEASE CHEMICAL SITE, SALEM, OHIO
REMOVAL ACTION
MONTHLY PROGRESS REPORT
DECEMBER 2003**

1.0 INTRODUCTION

This progress report has been prepared in accordance with Paragraph 14 of the "Order" section of the Administrative Order by Consent (AOC) Docket No. V-W-94-C-212, effective November 17, 1993, regarding a Removal Action at the Nease Chemical Site in Salem, Ohio. The report summarizes the major activities during the month along with investigation results and any problems encountered on the project. Activities planned for next month are also presented.

2.0 SUMMARY OF ACTIVITIES PERFORMED

2.1 Project Activity

The activities that were initiated and/or completed during this month are described below. Activities were performed in accordance with the Removal Action AOC.

2.2 Work Plan Preparation/Reports

No work plans/reports were submitted this period.

2.3 Fieldwork

2.3.1 Site Inspections

The results of the monthly site inspection carried out at the site in December 22, 2003 are shown in Attachment 1.

2.3.2 Monthly Water Level Measurements

The water level measurements are taken quarterly. The next event is planned for mid-February 2004..

2.3.3 Treatment Plant Operation

The treatment plant operated normally throughout the month.

2.4.1.1 Meetings

No meetings were held this month.

3.0 VARIATIONS FROM THE APPROVED REMOVAL ACTION WORK PLAN

There were no variations from the approved Removal Action Work Plan for the month.

4.0 RESULTS OF INSPECTIONS, ENVIRONMENTAL SAMPLING, TESTS AND ANALYSES

Water monitoring samples were collected from the treatment plant during November/December. Attachment 2 and 3 include results from water and air samples collected on November 17, 2003 and December 3, 2003. The mid-December sampling results were not available at the time reporting. It will be included in next monthly report.

Also attached are the results for two acute toxicity evaluations (quarterly; Attachment 4) and two chronic toxicity evaluations (semiannual; Attachment 5) performed on samples from the groundwater treatment plant effluent. The test was conducted from American Aquatic Testing, Inc..

5.0 PROJECT SCHEDULE

The updated Work Plan schedule identifies completion and target dates for project activities.

6.0 DIFFICULTIES ENCOUNTERED AND ACTION TAKEN TO RESOLVE PROBLEMS

No significant difficulties were reported this month

7.0 PERSONNEL CHANGES

No changes occurred during this month.

8.0 TYPES AND QUANTITIES OF REMOVED MATERIALS

For the period from December 1 through December 31, 2003 the following material was removed:

- 15,000 gallons of leachate and/or backwash water were disposed off-site at a licensed treatment facility.
- Approximately 192,903 gallons were pumped from Leachate Collection System 1 (LCS-1) (total for LCS-1 =15,039,261 gallons).

- Approximately 10,458 gallons were pumped from Leachate Collection System 2 (LCS-2) (total for LCS-2 = 1,061,871 gallons).
- Approximately 1,009 gallons were pumped from Pond 1 (total for the pond = 879,405 gallons).
- Approximately 18.60 pounds of organic compounds were removed during pumping (estimate based on average VOC/SVOC concentrations for each source).

9.0 ANTICIPATED PROJECT ACTIVITIES FOR JANUARY 2004

Removal Action activities scheduled for the upcoming month include on-going implementation of the approved Removal Action Work Plan involving:

- Collection of groundwater from the existing collection systems LCS-1, LCS-2 and Pond 1.
- Monthly Progress Report

Table 1
Nease Chemical Site, Salem, Ohio
Removal Action Schedule

Date	Task/Activity/Deliverable/Milestone
November 17, 1993	Removal AOC Effective Date
November 17, 1993	Commence Preparation of Removal Action Work Plan
November 23, 1993	Submit Treatment Plant Performance Evaluation Work Plan (Rev. #1)
November 28, 1993	USEPA Conditional Approval of TPPEWP
December 1, 1993	Commence Treatment Plant Performance Evaluation
December 9, 1993	Complete Treatment Plant Performance Evaluation
December 10, 1993	Submit monthly progress report
December 17, 1993	Submit Removal Action Work Plan (Rev #0) to USEPA
January 3, 1994	USEPA Approval of TPPEWP (Rev #1)
January 10, 1994	Submit monthly progress report
January 15, 1994	Complete Treatment Plant Data Analysis and Evaluation
January 17, 1994	Notify EPA of inability of Treatment Plant to meet proposed discharge criteria. Commence preparation of Treatment Plant Modifications Work Plan (TPMWP)
January 24, 1994	USEPA disapproval of Removal Action Work Plan (Rev. #0) and associated comments
February 4, 1994	Submit Revised Removal Action Work Plan (Rev #1) and Response to Agency comments
February 10, 1994	Submit monthly progress report
February 11, 1994	Submit Treatment Plant Performance Evaluation Report (TPPER)
March 2, 1994	Submit Treatment Plant Modifications Work Plan (TPMWP, Rev. #0)
March 10, 1994	Submit monthly progress report
April 10, 1994	Submit monthly progress report
April 13, 1994	Submit Revised Removal Action Work Plan (Rev #2) and Response to Agency comments
April 20, 1994	Submit Revised TPMWP (Rev. #1) and Response to Agency comments
May 10, 1994	Submit monthly progress report
May 13, 1994	Submit Updates (Rev #3) to Removal Action Work Plan (Rev #2) and Response to Agency comments
May 25, 1994	USEPA approval of Revised RA Work Plan (Rev #2). Commence work on Work Plan implementation
May 25, 1994	Commence Preparation of Removal Action WP Addendum
June 1, 1994	Receipt of USEPA approval of Revised RA Work Plan (Rev #3)
June 10, 1994	Submit monthly progress report
June 24, 1994	Submit TPMWP (Rev #2)
July 10, 1994	Submit monthly progress report
July 26, 1994	Submit Treatment Plant Modifications Design Technical Memorandum (TPMDTM, Rev #0)
July 28, 1994	Receipt of USEPA approval of TPMWP (Rev #2 with revised Table 4)
August 10, 1994	Submit monthly progress report
August 30, 1994	Submit Removal Action Work Plan Addendum (RAWPA)

Date	Task/Activity/Deliverable/Milestone
September 10, 1994	Submit monthly progress report
September 23, 1994	Receipt of USEPA Comments on TPMDTM
October 3, 1994	Submit TPMDTM (Rev #1)
October 4, 1994	Submit TPMDTM (Rev #1)
October 10, 1994	Submit monthly progress report
November 9, 1994	Submit TPMDTM (Rev #2)
November 10, 1994	Submit monthly progress report
December 1, 1994	Receipt of USEPA approval of TPMDTM (Rev #2)
December 10, 1994	Submit monthly progress report
December 12-19, 1994	RAWPA Extraction Well and Piezometer Installation
January 10, 1995	Submit monthly progress report
January/February/ March, 1995	Construction of TPMWP/TPMDTM measures
February 10, 1995	Submit monthly progress report
March 10, 1995	Submit monthly progress report
March 13-16, 1995	Performance of Field Pumping Tests (E4 and S7)
April 10, 1995	Submit monthly progress report
April 24, 1995	Submit status report on RAWPA, Task 5
May 4, 1995	Start on-site treatment plant
May 10, 1995	Submit monthly progress report
June 10, 1995	Submit monthly progress report
July 10, 1995	Submit monthly progress report
July 21, 1995	Submit treatment plant 1 st month operation summary report
July 26, 1995	Submit Cone penetrometer testing report and additional investigation plan
August 10, 1995	Submit monthly progress report
September 10, 1995	Submit monthly progress report
October 10, 1995	Submit monthly progress report
November 10, 1995	Submit monthly progress report
December 10, 1995	Submit monthly progress report
January 8-12, 1996	Conduct 2 nd Round of cone penetrometer testing on site
January 10, 1996	Submit monthly progress report
February 10, 1996	Submit monthly progress report
March 10, 1996	Submit monthly progress report
April 10, 1996	Submit monthly progress report
April 18, 1996	Discontinue Outfall Discharge
April 24, 1996	Agency Meeting – Discuss CPT results and future action plan
May 10, 1996	Submit monthly progress report
May 23, 1996	Submit 1996 IRM Seep Investigation and Fabric Barrier Work Plan
June 10, 1996	Submit monthly progress report
July 8-12, 1996	Install Piezometers and modify fabric barriers
July 10, 1996	Submit monthly progress report
August 6, 1996	Submit monthly progress report
September 10, 1996	Submit monthly progress report

Date	Task/Activity/Deliverable/Milestone
October 10, 1996	Submit monthly progress report
November 10, 1996	Submit monthly progress report
December 10, 1996	Submit monthly progress report
January 10, 1997	Submit monthly progress report
February 10, 1997	Submit monthly progress report
March 10, 1997	Submit monthly progress report
April 10, 1997	Submit monthly progress report
May 9, 1997	Submit monthly progress report
May 13, 1997	Sample seep piezometers
June 9, 1997	Submit monthly progress report
July 8, 1997	Submit monthly progress report
August 8, 1997	Submit monthly progress report
September 10, 1997	Submit monthly progress report
October 10, 1997	Submit monthly progress report
November 10, 1997	Submit monthly progress report
December 10, 1997	Submit monthly progress report
January 9, 1998	Submit monthly progress report
February 10, 1998	Submit monthly progress report
March 10, 1998	Submit monthly progress report
April 8, 1998	Submit monthly progress report
May 7, 1998	Submit monthly progress report
June 9, 1998	Submit monthly progress report
June 30, 1998	Sample Seep Sheen
July 10, 1998	Submit monthly progress report
August 7, 1998	Submit monthly progress report
August 19, 1998	Install 1 new fabric barrier and remover 1 old one
September 10, 1998	Submit monthly progress report
October 9, 1998	Submit monthly progress report
November 10, 1998	Submit monthly progress report
December 10, 1998	Submit monthly progress report
January 8, 1999	Submit monthly progress report
February 10, 1999	Submit monthly progress report
March 9, 1999	Submit monthly progress report
April 9, 1999	Submit monthly progress report
May 10, 1999	Submit monthly progress report
June 9, 1999	Submit monthly progress report
July 9, 1999	Submit monthly progress report
August 9, 1999	Submit monthly progress report
September 10, 1999	Submit monthly progress report
October 8, 1999	Submit monthly progress report
November 8, 1999	Submit monthly progress report
December 9, 1999	Submit monthly progress report
January 10, 2000	Submit monthly progress report

Date	Task/Activity/Deliverable/Milestone
February 10, 2000	Submit monthly progress report
March 8, 2000	Submit monthly progress report
April 4, 2000	Submit monthly progress report
May 10, 2000	Submit monthly progress report
June 8, 2000	Submit monthly progress report
July 7, 2000	Submit monthly progress report
August 8, 2000	Submit monthly progress report
September 8, 2000	Submit monthly progress report
October 4, 2000	Submit monthly progress report
November 3, 2000	Submit monthly progress report
December 8, 2000	Submit monthly progress report
January 4, 2001	Submit monthly progress report
February 6, 2001	Submit monthly progress report
March 8, 2001	Submit monthly progress report
April 9, 2001	Submit monthly progress report
May 8, 2001	Submit monthly progress report
June 6, 2001	Submit monthly progress report
July 6, 2001	Submit monthly progress report
August 7, 2001	Submit monthly progress report
September 10, 2001	Submit monthly progress report
October 5, 2001	Submit monthly progress report
November 7, 2001	Submit monthly progress report
December 7, 2001	Submit monthly progress report
January 9, 2002	Submit monthly progress report
February 8, 2002	Submit monthly progress report
March 5, 2002	Submit monthly progress report
April 5, 2002	Submit monthly progress report
May 8, 2002	Submit monthly progress report
June 5, 2002	Submit monthly progress report
July 8, 2002	Submit monthly progress report
August 9, 2002	Submit monthly progress report
September 10, 2002	Submit monthly progress report
October 10, 2002	Submit monthly progress report
November 6, 2002	Submit monthly progress report
December 10, 2002	Submit monthly progress report
January 9, 2003	Submit monthly progress report
February 7, 2003	Submit monthly progress report
March 19, 2003	Submit monthly progress report
April 7, 2003	Submit monthly progress report
May 7, 2003	Submit monthly progress report
June 10, 2003	Submit monthly progress report
July 8, 2003	Submit monthly progress report
August 8, 2003	Submit monthly progress report
September 5, 2003	Submit monthly progress report
October 8, 2003	Submit monthly progress report
November 10, 2003	Submit monthly progress report
December 8, 2003	Submit monthly progress report
January 9, 2004	Submit monthly progress report

Attachment 1
Results of Monthly Site Inspection
Nease Chemical Site, Salem, Ohio
December 2003

SITE INSPECTION FORM
RUETGERS-NEASE CORPORATION
Nease Site, Salem, Ohio

Date of Inspection: 12-22-03

Entry Time: 900 Exit Time: 1100

Weather: THAWING SNOW (WARM)

Inspector's Name: DENNIS L. LANE

Inspector's Company: Howells and Baird, Inc.

INSPECTION RESULTS

SPECIFIC OBSERVATIONS: Structures

(Responses: S = Satisfactory U = Unsatisfactory Yes/No Levels Measured in Feet, N/A = Not Applicable)

	Pump	Quick Connect	Water Level	Berm Erosion	Visible Leakage
Leachate Collection System 1 (LCS-1)	S	S	12.49	N/A	No
Leachate Collection System 2 (LCS-2)	S	S	8.10	N/A	No
Pond 1 Pumphouse	S	S	8.98	N/A	No
Pond 1 Berm	N/A	N/A	N/A	No	No
Pond 2 Embankment	N/A	N/A	N/A	No	No
Exclusion Area A Embankment	N/A	N/A	N/A	No	No
Storage Tank	N/A	S S	6.09	N/A	No
Other (specify)		D.L.L.			

SPECIFIC OBSERVATIONS:

Sediment Barriers

Condition of Sediment Barriers

Barrier ID	Fabric Intact?	By Passing Evident?	Is Maintenance Necessary?
Sediment Control Structure 1	YES	No	No
Sediment Control Structure 2	YES	No	No
Fabric Barrier 2	YES	No	No
Fabric Barrier 3	YES	No	No
Fabric Barrier 4	YES	No	No
Fabric Barrier 5	YES	No	No
Fabric Barrier 8	YES	No	No
Fabric Barrier 9	YES	No	No
Fabric Barrier 10	YES	No	No
Fabric Barrier 11	YES	No	No
Rock Barrier 1	YES	No	No
Rock Barrier 2	YES	No	No
Pond 7 - North	YES	No	No
Pond 7 - South	YES	No	No

SPECIFIC OBSERVATIONS:

Seeps (if present, use more forms, as necessary)

Seep ID (yr-month-#)	Located on Map	Areal Extent (ft ²)	Magnitude (flow?, ponding?)
94-7-1	YES	20	Non-Flowing Seep
96-8-2	YES	20	Non-Flowing Seep

Note: Seep ID # equal the "nth" observed seep during the yr-month in question.

ADDITIONAL OBSERVATION OR REMARKS:

Inspector's Name: _____

DENNIS L. LANE

Inspector's Signature: _____

Dennis L. Lane

Date: _____

12-23-03

CRANE-DEMING COMPANY.

S13

CRANE
DEMING
SWAMP

96-8-2

S1

Attachment 2

Water/Air Sampling Results – November 17, 2003 Nease Chemical Site, Salem, Ohio

RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number. 155

Contact. RAINER DOMALSKI

Date Received. 18-NOV-03
Date Reported: 11-DEC-03

Invoice Number: 32578

Date Collected: 17-NOV-03

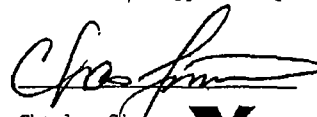
Client ID: INFLUENT 11-17-03

Lab ID: L35379-1

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
PESTICIDE ANALYSIS						
KEPONE	ug/L	U .042	.042	SOP 6.2	05-DEC-03	CP
PHOTOMIREX	ug/L	U .006	.006	SOP 6.2	05-DEC-03	CP
MIREX	ug/L	.287	.002	SOP 6.2	05-DEC-03	CP
PH	PH UNITS	7.17	0	EPA 150.1	19-NOV-03	CEE
TOTAL DISSOLVED SOLIDS	mg/L	618	10	EPA 160.1	25-NOV-03	STL
TOTAL SUSPENDED SOLIDS	mg/L	34.8	4	EPA 160.2	25-NOV-03	STL

Comments: <none>

Submitted by
Exygen Research
Reviewed and Approved by:


Charles Simons
Laboratory Manager

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RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number: 155

Contact: RAINER DOMALSKI

Date Received: 18-NOV-03

Date Reported: 11-DEC-03

Invoice Number: 32578

Date Collected: 17-NOV-03

Client ID: LGAC 2-3 11-17-03

Lab ID: L35379-2

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
PESTICIDE ANALYSIS						
KEPONE	ug/L	U .042	.042	SOP 6.2	05-DEC-03	CP
PHOTOMIREX	ug/L	U .006	.006	SOP 6.2	05-DEC-03	CP
MIREX	ug/L	U .002	.002	SOP 6.2	05-DEC-03	CP
PH	PH UNITS	7.86	0	EPA 150.1	19-NOV-03	CSE
TOTAL DISSOLVED SOLIDS	mg/L	503	10	EPA 160.1	25-NOV-03	STL
TOTAL SUSPENDED SOLIDS	mg/L	< 4	4	EPA 160.2	25-NOV-03	STL
VOLATILE ANALYSIS						
VINYL CHLORIDE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
DICHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CIS-1,2-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRANS-1,2-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CHLOROFORM	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,2-DICHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1,1-TRICHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1,2,2-TETRACHLOROETHANE	ug/L	6	5	EPA 8260B	20-NOV-03	JEG
1,2-DICHLOROPROPANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TETRACHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TOLUENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CHLOROBENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
ETHYLBENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
M, P-XYLENE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
O-XYLENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
ACETONE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
2-BUTANONE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
CHLOROMETHANE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
CIS-1,3-DICHLOROPROPENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRANS-1,3-DICHLOROPROPENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG

RUTGERS ORGANICS CORPORATION
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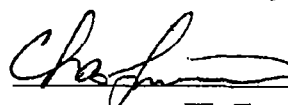
Client ID: LGAC 2-3 11-17-03

Lab ID: L35379-2

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
BROMOFORM	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
DIBROMOCHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMODICHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CARBON TETRACHLORIDE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMOMETHANE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG

Comments: <none>

Submitted by
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Reviewed and Approved by:



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RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number. 155

Contact: RAINER DOMALSKI

Date Received. 18-NOV-03

Date Reported. 11-DEC-03

Invoice Number: 32578

Date Collected: 17-NOV-03

Client ID: OUTFALL 11-17-03

Lab ID: L35379-3

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
SILVER-LOW LEVEL	mg/L	< .0003	.0003	EPA 200.8	21-NOV-03	JMS
ALUMINUM-LOW LEVEL	mg/L	.023	.0005	EPA 200.8	21-NOV-03	JMS
ARSENIC-LOW LEVEL	mg/L	.0241	.0003	EPA 200.8	21-NOV-03	JMS
BERYLLIUM-LOW LEVEL	mg/L	< .0004	.0004	EPA 200.8	21-NOV-03	JMS
BOD-5 DAY	mg/L	3	1	SM 5210	14-NOV-03	TGA
CADMIUM-LOW LEVEL	mg/L	< .0003	.0003	EPA 200.8	21-NOV-03	JMS
CYANIDE-FREE	mg/L	< .005	.005	EPA 335.4	24-NOV-03	JPB
COD	mg/L	< 10	10	EPA 410.4	22-NOV-03	STL
CHROMIUM-LOW LEVEL	mg/L	.000661	.0006	EPA 200.8	21-NOV-03	JMS
COPPER-LOW LEVEL	mg/L	< .001	.001	EPA 200.8	21-NOV-03	JMS
IRON-LOW LEVEL	mg/L	1.12	.0005	EPA 200.8	21-NOV-03	JMS
MERCURY	mg/L	< .002	.002	EPA 7470A	22-NOV-03	STL
PESTICIDE ANALYSIS						
KEPONE	ug/L	U .042	.042	SOP 6.2	05-DEC-03	CP
PHOTOMIREX	ug/L	U .006	.006	SOP 6.2	05-DEC-03	CP
MIREX	ug/L	U .002	.002	SOP 6.2	05-DEC-03	CP
AMMONIA	mg/L	.68	.1	EPA 350.1	01-DEC-03	STL
NICKEL-LOW LEVEL	mg/L	.0149	.0006	EPA 200.8	21-NOV-03	JMS
OIL & GREASE	mg/L	< 10	10	EPA 1664A	30-NOV-03	STL

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Date Collected: 17-NOV-03

Client ID: OUTFALL 11-17-03

Lab ID: L35379-3

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
LEAD-LOW LEVEL	mg/L	< .0003	0003	EPA 200.8	21-NOV-03	JMS
PESTICIDE/PCB ANALYSIS METHOXYCHLOR	ug/L	< .008	008	EPA 8081	24-NOV-03	CAK
PH	PH UNITS	7.78	0	EPA 150.1	19-NOV-03	CEE
ANTIMONY-LOW LEVEL	mg/L	.000481	0004	EPA 200.8	21-NOV-03	JMS
SEMI-VOLATILE ANALYSIS						
ANTHRACENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
BENZO (A) ANTHRACENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
BENZO (K) FLUORANTHENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
3,4-BENZOFLUORANTHENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
BENZO (B) FLUORANTHENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
BENZO (G, H, I) PERYLENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
BENZO (A) PYRENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
CHRYSENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
DIBENZ (A, H) ANTHRACENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
FLUORENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
INDENO (1,2,3-CD) PYRENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
NAPHTHALENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
PHENANTHRENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
PYRENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
PHENOL	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
4-METHYLPHENOL	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
1,3-DICHLOROBENZENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
1,4-DICHLOROBENZENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
1,2-DICHLOROBENZENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
DIMETHYL PHTHALATE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
BUTYLBENZYL PHTHALATE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
DI-N-BUTYL PHTHALATE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
2-METHYLNAPHTHALENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
3,4-DICHLORONITROBENZENE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP
DIPHENYL SULFONE	ug/L	< 40	40	EPA 8270C	05-DEC-03	CP

RUTGERS ORGANICS CORPORATION
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Date Collected: 17-NOV-03

Client ID: OUTFALL 11-17-03

Lab ID: L35379-3

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
TOTAL DISSOLVED SOLIDS	mg/L	2540	10	EPA 160.1	25-NOV-03	STL
THALLIUM-LOW LEVEL	mg/L	.000778	.0002	EPA 200.8	21-NOV-03	JMS
TOTAL ORGANIC CARBON	mg/L	< 1	1	EPA 415.1	24-NOV-03	STL
TOTAL SUSPENDED SOLIDS	mg/L	4.4	4	EPA 160.2	25-NOV-03	STL
VOLATILE ANALYSIS						
VINYL CHLORIDE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
DICHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CIS-1,2-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRANS-1,2-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CHLOROFORM	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,2-DICHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1,1-TRICHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1,2,2-TETRACHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,2-DICHLOROPROPANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TETRACHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TOLUENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CHLOROBENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
ETHYLBENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
M, P-XYLENE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
O-XYLENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
ACETONE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
2-BUTANONE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
CHLOROMETHANE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
CIS-1,3-DICHLOROPROPENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRANS-1,3-DICHLOROPROPENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMOFORM	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
DIBROMOCHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMODICHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CARBON TETRACHLORIDE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG

RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number: 155
Contact: RAINER DOMALSKI

Date Received: 18-NOV-03
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Invoice Number: 32578
Date Collected: 17-NOV-03


Client ID: OUTFALL 11-17-03

Lab ID: L35379-3

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
BROMOMETHANE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
ZINC-LOW LEVEL	mg/L	.000572	.0005	EPA 200.8	21-NOV-03	JMS

Comments: Please see Narrative L35379 for comments related to this sample

Submitted by
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RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number: 155

Contact: RAINER DOMALSKI

Date Received 18-NOV-03
Date Reported: 11-DEC-03

Invoice Number: 32578

Date Collected: 13-NOV-03


Client ID: TRIP BLANK

Lab ID: L35379-4

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
VOLATILE ANALYSIS						
VINYL CHLORIDE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
DICHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CIS-1,2-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRANS-1,2-DICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CHLOROFORM	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,2-DICHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1,1-TRICHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,1,2,2-TETRACHLOROETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
1,2-DICHLOROPROPANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRICHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TETRACHLOROETHENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TOLUENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CHLOROBENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
ETHYLBENZENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
M,P-XYLENE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
O-XYLENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
ACETONE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
2-BUTANONE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
CHLOROMETHANE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG
CIS-1,3-DICHLOROPROPENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
TRANS-1,3-DICHLOROPROPENE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMOFORM	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
DIBROMOCHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMODICHLOROMETHANE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
CARBON TETRACHLORIDE	ug/L	< 5	5	EPA 8260B	20-NOV-03	JEG
BROMOMETHANE	ug/L	< 10	10	EPA 8260B	20-NOV-03	JEG

Comments: <none>

Submitted by
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Reviewed and Approved by:


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RUTGERS ORGANICS CORPORATION/EHS DEPT.
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
ACCOUNT: 155

Date Received 18-Nov-03
Date Reported: 11-Dec-03

Invoice Number. 32578

Contact: RAINER DOMALSKI

Date Collected: 17-Nov-03

Client ID: AGAC-1-2-11-17-03

Lab ID: L35379-5

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
VOLATILE ANALYSIS						
BROMODICHLOROMETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
BROMOFORM	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
DIBROMOCHLOROMETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
DIBROMOMETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TRANS-1,2-DICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CUMENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
N-PROPYLBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2,3-TRICHLOROPROPANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
DICHLORODIFLUOROMETHANE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
VINYL CHLORIDE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
CHLOROETHANE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
TRICHLOROFUOROMETHANE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
1,1-DICHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,1-DICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CIS-1,2-DICHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CHLOROFORM	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,1,1-TRICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CARBON TETRACHLORIDE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
BENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TRICHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DICHLOROPROPANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CIS-1,3-DICHLOROPROPENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TOLUENE	ppb (v/v)	10	1	EPA-19 TO-14	05-Dec-03	STL
TRANS-1,3-DICHLOROPROPENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,1,2-TRICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TETRACHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DIBROMOETHANE (EDB)	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
ETHYLBENZENE	ppb (v/v)	1.2	1	EPA-19 TO-14	05-Dec-03	STL
M,P-XYLENE	ppb (v/v)	2.7	1	EPA-19 TO-14	05-Dec-03	STL
O-XYLENE	ppb (v/v)	1.0	1	EPA-19 TO-14	05-Dec-03	STL
STYRENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL

RUTGERS ORGANICS CORPORATION/EHS DEPT.
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
ACCOUNT: 155

Date Received: 18-Nov-03

Date Reported: 11-Dec-03

Invoice Number: 32578

Contact: RAINER DOMALSKI


Date Collected: 17-Nov-03

Client ID: AGAC-1-2-11-17-03

Lab ID: L35379-5

PARAMETER	UNITS	RESULT	LIMIT OF			
			QUANTITATION	TEST METHOD	TEST DATE	ANALYST
1,1,2,2-TETRACHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,3,5-TRIMETHYLBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,3-DICHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,4-DICHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DICHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL

Submitted by
Exygen Research
Reviewed and Approved by:


Charles Simons
Laboratory Manager

RUTGERS ORGANICS CORPORATION/EHS DEPT.
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
ACCOUNT: 155

Date Received: 18-Nov-03
Date Reported: 11-Dec-03
Invoice Number: 32578

Contact: RAINER DOMALSKI

Date Collected: 17-Nov-03

Client ID: AGAC-1-2-11-17-03

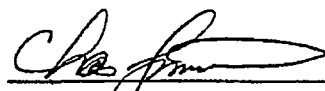
Lab ID: L35379-5

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	UNITS	ESTIMATED RESULT	RETENTION TIME	TEST METHOD	TEST DATE	ANALYST
UNKNOWN	ppb (v/v)	2.6 NJ	M 4.4635	EPA-19 TO-14	05-Dec-03	STL
ISOBUTANE	ppb (v/v)	18 NJ	M 4.5502	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	30 NJ	M 4.6977	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	16 NJ	M 4.8191	EPA-19 TO-14	05-Dec-03	STL
ETHANOL	ppb (v/v)	4.3 NJ	M 5.5042	EPA-19 TO-14	05-Dec-03	STL
BUTANE, 2-METHYL-	ppb (v/v)	23 NJ	M 5.7731	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	20 NJ	M 6.0939	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	8.4 NJ	M 6.2674	EPA-19 TO-14	05-Dec-03	STL
METHYLENE CHLORIDE	ppb (v/v)	2.9 NJ	M 7.1607	EPA-19 TO-14	05-Dec-03	STL
PENTANE, 2-METHYL	ppb (v/v)	4.5 NJ	M 8.0713	EPA-19 TO-14	05-Dec-03	STL
PENTANE, 3-METHYL	ppb (v/v)	4.4 NJ	M 8.5396	EPA-19 TO-14	05-Dec-03	STL
HEXANE	ppb (v/v)	14 NJ	M 9.086	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	2.7 NJ	M 9.6757	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	5.2 NJ	M 10.239	EPA-19 TO-14	05-Dec-03	STL
HEXANE, 3-METHYL-	ppb (v/v)	2.6 NJ	M 11.748	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	2.2 NJ	M 12.164	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	1.8 NJ	M 12.511	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1-ETHYL-2-METHYL-	ppb (v/v)	1.8 NJ	M 18.695	EPA-19 TO-14	05-Dec-03	STL
DECANE	ppb (v/v)	4.1 NJ	M 19.068	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1,2,3-TRIMETHYL-	ppb (v/v)	6.3 NJ	M 19.215	EPA-19 TO-14	05-Dec-03	STL
D-LIMONENE	ppb (v/v)	3.8 NJ	M 19.683	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1,2-DICHLORO-3-METHYL-	ppb (v/v)	3.1 NJ	M 21.01	EPA-19 TO-14	05-Dec-03	STL

M Result was measured against nearest internal standard assuming a response factor of 1.

Submitted by
Oxygen Research
Reviewed and Approved by:


Charles Simons
Laboratory Manager

RUTGERS ORGANICS CORPORATION/EHS DEPT.
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
ACCOUNT: 155

Date Received: 18-Nov-03

Date Reported: 11-Dec-03

Invoice Number: 32578

Contact: RAINER DOMALSKI

Date Collected: 17-Nov-03

Client ID: AGAC-F-11-17-03

Lab ID: L35379-6

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
VOLATILE ANALYSIS						
BROMODICHLOROMETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
BROMOFORM	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
DIBROMOCHLOROMETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
DIBROMOMETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TRANS-1,2-DICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CUMENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
N-PROPYLBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2,3-TRICHLOROPROPANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
DICHLORODIFLUOROMETHANE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
VINYL CHLORIDE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
CHLOROETHANE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
TRICHLOROFLUOROMETHANE	ppb (v/v)	< 2	2	EPA-19 TO-14	05-Dec-03	STL
1,1-DICHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,1-DICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CIS-1,2-DICHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CHLOROFORM	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,1,1-TRICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CARBON TETRACHLORIDE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
BENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TRICHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DICHLOROPROPANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CIS-1,3-DICHLOROPROPENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TOLUENE	ppb (v/v)	2.0	1	EPA-19 TO-14	05-Dec-03	STL
TRANS-1,3-DICHLOROPROPENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,1,2-TRICHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
TETRACHLOROETHENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DIBROMOETHANE (EDB)	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
CHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
ETHYLBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
M,P-XYLENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
O-XYLENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
STYRENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL

RUTGERS ORGANICS CORPORATION/EHS DEPT.
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
ACCOUNT: 155

Date Received: 18-Nov-03

Date Reported: 11-Dec-03

Invoice Number: 32578

Contact: RAINER DOMALSKI

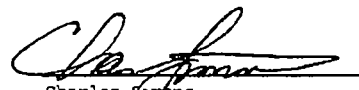
Date Collected: 17-Nov-03

Client ID: AGAC-F-11-17-03

Lab ID: L35379-6

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
1,1,2,2-TETRACHLOROETHANE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,3,5-TRIMETHYLBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,3-DICHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,4-DICHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL
1,2-DICHLOROBENZENE	ppb (v/v)	< 1	1	EPA-19 TO-14	05-Dec-03	STL

Submitted by
Exygen Research
Reviewed and Approved by:


Charles Simons
Laboratory Manager

RUTGERS ORGANICS CORPORATION/EHS DEPT.
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
ACCOUNT 155

Date Received: 18-Nov-03

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Contact: RAINER DOMALSKI

Date Collected: 17-Nov-03

Client ID: AGAC-F-11-17-03

Lab ID: L35379-6

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	UNITS	ESTIMATED RESULT	RETENTION TIME	TEST METHOD	TEST DATE	ANALYST
UNKNOWN	ppb (v/v)	34 NJ	M 4.6678	EPA-19 TO-14	05-Dec-03	STL
ETHANOL	ppb (v/v)	4.8 NJ	M 5.4744	EPA-19 TO-14	05-Dec-03	STL
BUTANE, 2-METHYL-	ppb (v/v)	1.9 NJ	M 5.7779	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	18 NJ	M 6.0901	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	2.0 NJ	M 6.2549	EPA-19 TO-14	05-Dec-03	STL
METHYLENE CHLORIDE	ppb (v/v)	2.3 NJ	M 7.1568	EPA-19 TO-14	05-Dec-03	STL
HEXANE	ppb (v/v)	6.5 NJ	M 9.0822	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	1.7 NJ	M 9.6719	EPA-19 TO-14	05-Dec-03	STL
FURAN, TETRAHYDRO-	ppb (v/v)	2.8 NJ	M 10.244	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	1.8 NJ	M 12.169	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1-ETHYL-2-METHYL-	ppb (v/v)	1.6 NJ	M 19.021	EPA-19 TO-14	05-Dec-03	STL
DECANE	ppb (v/v)	7.9 NJ	M 19.064	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1,3,5-TRIMETHYL-	ppb (v/v)	6.4 NJ	M 19.211	EPA-19 TO-14	05-Dec-03	STL
DECANE, 4-METHYL-	ppb (v/v)	2.2 NJ	M 19.393	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1,2,3-TRIMETHYL-	ppb (v/v)	2.4 NJ	M 19.671	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	1.7 NJ	M 19.836	EPA-19 TO-14	05-Dec-03	STL
UNKNOWN	ppb (v/v)	2.1 NJ	M 20.009	EPA-19 TO-14	05-Dec-03	STL
UNDECANE	ppb (v/v)	4.9 NJ	M 20.339	EPA-19 TO-14	05-Dec-03	STL
BENZENE, 1-METHYL-4-(1-METHYLE	ppb (v/v)	1.7 NJ	M 20.399	EPA-19 TO-14	05-Dec-03	STL

M. Result was measured against nearest internal standard assuming a response factor of 1.

Submitted by
Exygen Research
Reviewed and Approved by:


Charles Simons
Laboratory Manager

NARRATIVE

Exygen Research (PADEP ID# 14-347)

Project: L35379

Sample Receipt:

Samples were received on November 18, 2003. The samples were received in two sample coolers at 1.9°C and 2.2°C.

Sample Analysis:

The reporting limits for the EPA Method 8270C semivolatile compounds, for sample L35379-3 are elevated due to the limited amount of sample received for analysis.

Holding Times:

All samples were analyzed within holding times.

Sub-contract Laboratories:

Todd Giddings and Associates of State College, PA (PADEP ID# 14-321) performed the BOD analysis on these samples.

Severn Trent Laboratories (STL) of Pittsburgh, PA (PADEP ID# 02-416) performed the COD, total organic carbon, total suspended solids, mercury, ammonia nitrogen, and oil and grease analysis.

Severn Trent Laboratories (STL) of Knoxville, TN (PADEP ID# 68-576) performed the GC/MS volatiles (air) analysis.

Attachment 3

Water/Air Sampling Results – December 3, 2003 Nease Chemical Site, Salem, Ohio

RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number: 155

Contact: RAINER DOMALSKI

Date Received. 04-DEC-03
Date Reported 29-DEC-03

Invoice Number 32578

Date Collected 03-DEC-03

Client ID: INFLUENT 12-3-03

Lab ID L35424-1

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
AMMONIA	mg/L	89	1	EPA 350 1	22-DEC-03	STL
NITRATE+NITRITE	mg/L	< .1	.1	EPA 353 2	16-DEC-03	STL
PHOSPHORUS	mg/L	< 1	.1	EPA 365.2	11-DEC-03	STL

Comments <none>

Submitted by
Exygen Research
Reviewed and Approved by

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Charles Simons
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3058 Research Drive
State College, PA 16801, USA
T: 814.272.1039
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RUTGERS ORGANICS CORPORATION
201 STRUBLE ROAD
STATE COLLEGE, PA 16801
Account Number 155

Contact RAINER DOMALSKI

Date Received 04-DEC-03
Date Reported 29-DEC-03

Invoice Number 32578

Date Collected 03-DEC-03

Client ID: OUTFALL 12-3-03

Lab ID: L35424-2

PARAMETER	UNITS	RESULT	LIMIT OF QUANTITATION	TEST METHOD	TEST DATE	ANALYST
AMMONIA	mg/L	1	.1	EPA 350 1	22-DEC-03	STL
NITRATE+NITRITE	mg/L	< 1	1	EPA 353 2	16-DEC-03	STL
PHOSPHORUS	mg/L	13	.1	EPA 365 2	11-DEC-03	STL

Comments: <none>

Submitted by
Oxygen Research
Reviewed and Approved by

Charles Simons
Charles Simons
Laboratory Manager
3058 Research Drive
State College, PA 16801, USA
T: 814.272.1039
F: 814.231.1580
oxygen.com

NARRATIVE

Exygen Research (PADEP ID# 14-347)

Project: L35424

Sample Receipt:

Samples were received on December 4, 2003. The samples were received in one sample cooler at 2.2°C.

Sample Analysis:

There were no problems related to the analysis of these samples.

Holding Times:

All samples were analyzed within holding times.

Sub-contract Laboratories:

Severn Trent Laboratories (STL) of Pittsburgh, PA (PADEP ID# 02-416) performed the ammonia nitrogen analysis on these samples. Severn Trent Laboratories (STL) of North Canton, OH (PADEP ID# 68-340) performed the phosphorus analysis on these samples.

Attachment 4

**Results of Two Acute Toxicity Evaluations
December 2 through December 6, 2003
Nease Chemical Site, Salem, Ohio**

RESULTS OF TWO ACUTE TOXICITY EVALUATIONS OF
RUTGERS ORGANICS CORPORATION,
SALEM SITE LAGOON WATER TREATMENT PLANT
FINAL EFFLUENT

AAT JOB # 51 - 01 - 67

02 December - 06 December 2003

Report Prepared for:

Rutgers Organics Corporation
201 Struble Road
State College, Pennsylvania 16801

Report Prepared by:

AMERICAN AQUATIC TESTING, INC.
1105 UNION BLVD.
ALLENTOWN, PENNSYLVANIA 18109

INTRODUCTION

A set of two static acute toxicity tests were conducted with larval fathead minnows, *Pimephales promelas* (*P. promelas*) and the freshwater cladoceran, *Ceriodaphnia dubia* (*C. dubia*) to determine the relative toxicity of final effluent from the Rutgers Organics Corporation Lagoon Water Treatment Plant, Salem, Ohio. The 96-hour static fathead acute toxicity test and the 48-hour static *C. dubia* acute toxicity tests were conducted from 02 December through 06 December 2003. The toxicity evaluations were conducted by American Aquatic Testing, Inc., Allentown, Pennsylvania.

All tests were performed according to procedures outlined in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, 4th Edition (EPA/600/4-90/027F) and Reporting and Testing Guidance for Biomonitoring Required by the Ohio Environmental Protection Agency, October 1991.

MATERIALS

TEST ORGANSIMS

Fathead Minnow, *Pimephales promelas*

Larval fathead minnows used in acute testing were obtained from in-house cultures maintained by ABS, Inc.. Test age organisms are maintained in shallow depth basins containing 10L of moderately hard reconstituted water and are fed newly hatched *Artemia* (brine shrimp) nauplii twice a day up until test initiation. The test organisms were 14 days old at test initiation. No acclimation of these test organisms was required as they were raised in moderately hard reconstituted water, which was used for testing.

Freshwater Cladoceran, *Ceriodaphnia dubia*

Cladoceran neonates, *C. dubia* were obtained from AAT, Inc.'s in-house cultures. Cultures for generating test age (<24 hours old) neonates are maintained as single cultures in 30 mL soufflé cups containing 15 mL of moderately hard reconstituted water. These adults are transferred daily into fresh culture water and are fed a combination of a unicellular green alga (*Selenastrum capricornutum*) and a yeast/Cerophyll/trout chow (YCT) suspension. Broods released during a five hour period were pooled and used to initiate the acute toxicity test. No acclimation of these test organisms was required as they were raised in moderately hard reconstituted water, which was used for testing. Neonates were released between 0800 and 1200 of December 02, 2003.

DILUTION WATER

Moderately hard reconstituted water was prepared in accordance to procedures outlined in EPA/600/4-90/027F and was used as dilution/control water for the toxicity tests. Deionized water (Specialty Filtration Products) and reagent grade chemicals were used to achieve the following concentrations: 96 mg/L of NaHCO₃, 60.0 mg/L of MgSO₄ and 4.0 mg/L of KCl and 60.0mg/L of CaSO₄ 2H₂O.

TEST MATERIAL

The material tested was final effluent collected by Howells and Baird personnel with a grab sampler placed at the outfall. One grab sample was collected for each of the two acute toxicity tests. The sample, collected December 01, 2003, was shipped overnight to AAT, Inc. in a cooler containing ice and was used to initiate testing on December 02, 2003. A Chain-of-Custody accompanied the sample. Tests were initiated prior to the expiration of the 36-hour holding time.

METHODS

P. promelas larvae (14 day old) were exposed to the effluent sample for 96 hours under static, non-renewal conditions. Test organisms were exposed in groups of 10 in 1 L glass beakers containing 500 mL of test solution with two replicates per concentration (20 organisms per concentration). The test organisms were fed prior to test initiation and at 48 hours.

C. dubia neonates (<24 hours old) were exposed to the effluent sample for 48 hours under static non-renewal conditions. Test organisms were exposed in groups of five in 30 mL soufflé cups containing 15 mL of test solution with four replicates per concentration (20 organisms per concentration). The test organisms were not fed during the test exposure.

Both sets of test chambers were placed in randomized positions in a temperature controlled environment maintained at $25 \pm 1^\circ \text{C}$. The highest concentration used for exposure was 100 %. A 0.56 dilution schedule was used to prepare sample concentrations of 56%, 32%, 18% and 10%, by volume. A control sample consisting of 100 % dilution water was also tested.

Surviving test organisms were counted daily. Dead test organisms and debris were removed daily at this time. Temperature was measured daily in a surrogate replicate placed alongside the test chambers. Dissolved oxygen, pH and conductivity were measured in one replicate chamber at each concentration at the beginning and end of the test exposure. Alkalinity and hardness were measured in the control and the 100% concentration at the beginning of the test exposure. The lighting regime was 16 hours light, 08 hours dark.

RESULTS

FATHEAD MINNOW 96-HOUR ACUTE TEST RESULTS

As a result of less than 50 % mortality in any test concentration during the exposure period the acute data was evaluated visually. Therefore, the 96-hour LC_{50} is $> 100\%$. This result yields an Acute Toxic Unit; TUa ($100\%/\text{LC}_{50}$) of 1.0.

CERIODAPHNIA DUBIA 48-HOUR ACUTE TEST RESULTS

As a result of less than 50 % mortality in any test concentration during the exposure period the acute data was evaluated visually. Therefore, the 48-hour LC_{50} is $> 100\%$. This result yields an Acute Toxic Unit; TUa ($100\%/\text{LC}_{50}$) of 1.0.

Table I. Fathead Minnow Mortality Data

CLIENT: Rutgers Organics Corp., Salem Lagoon Water Treatment Plant
 TEST: 96-hour Definitive Acute Toxicity Test
 DATE: 02 -06 December 2003

Sample Type	% Effluent	# of Organisms	Cumulative number of organisms affected at				% Mortality*
			24 hr	48 hr	72 hr	96 hr	
Final Effluent	0	20	0	0	0	0	0
	10	20	0	0	0	0	0
	18	20	0	0	0	0	0
	32	20	0	0	0	0	0
	56	20	0	0	0	0	0
	100	20	0	0	0	0	0

* Cumulative Percent Mortality at 96 hours

Table II. Fathead Minnow Physical/Chemical Measurements

CLIENT: Rutgers Organics Corp., Salem Lagoon Water Treatment Plant
 TEST: 96-hour Definitive Acute Toxicity Test
 DATE: 02 -06 December 2003

Time	% Effluent by Volume					
	0	10	18	32	56	100
0 hour						
Conduct. μ mhos	290	350	390	460	700	950
D.O. ppm	7.3	7.3	7.3	7.3	7.4	7.7
Temp. °C A	25.0	25.0	25.0	25.0	25.0	25.0
B	25.0	25.0	25.0	25.0	25.0	25.0
pH Std. units	7.9	8.1	8.3	8.5	8.7	8.9
Alkalinity mg/L	70					150
Hardness mg/L	90					300
24 hours A	25.5	25.5	25.5	25.5	25.5	25.5
Temp. °C B	25.5	25.5	25.5	25.5	25.5	25.5
48 hours A	25.0	25.0	25.0	25.0	25.0	25.0
Temp. °C B	25.0	25.0	25.0	25.0	25.0	25.0
72 hours A	25.0	225.0	24.5	24.5	24.5	24.5
Temp. °C B	25.0	24.5	24.5	24.5	24.5	24.5
96 hours						
Conduct. μ mhos	310	370	400	460	700	950
D.O. ppm	7.4	7.3	7.2	7.2	7.2	7.0
pH Std. units	7.9	7.9	7.9	8.1	8.3	8.4
Temp. °C A	25.0	25.0	25.0	25.0	25.0	25.0
B	25.0	25.0	25.0	25.0	25.0	25.0

Table I. *Ceriodaphnia dubia* Mortality Data

Table I. *Ceriodaphnia dubia* Mortality Data

CLIENT: Rutgers Organics Corp., Salem Lagoon Water Treatment Plant
 TEST: 48 hour Definitive Acute Toxicity Test
 DATE: 02 – 04 December 2003

Sample Type	% Effluent	# of Organisms	Cumulative number of organism affected at		% Mortality*
			24 hours	48 hours	
Final Effluent	0	20	0	0	0
	10	20	0	0	0
	18	20	0	0	0
	32	20	0	1	5
	56	20	0	0	0
	100	20	0	0	0

* Cumulative Percent Mortality at 48 hours

Table II. *Ceriodaphnia dubia* Physical/Chemical Measurements

CLIENT: Rutgers Organics Corp., Salem Lagoon Water Treatment Plant
 TEST: 48 hour Definitive Acute Toxicity Test
 DATE: 02 – 04 December 2003

Time	% Effluent by Volume					
	0	10	18	32	56	100
0 hour						
Conduct. μ mhos	290	350	390	460	700	950
D.O. ppm	7.3	7.3	7.3	7.3	7.4	7.7
Temp. °C	25.0	25.0	25.0	25.0	25.0	25.0
pH Std .units	7.9	8.1	8.3	8.5	8.7	8.9
Alkalinity mg/L	70					150
Hardness mg/L	90					300
24 hours						
Temp. °C	25.5	25.5	25.5	25.5	25.5	25.5
48 hours						
Conduct. μ mhos	330	420	460	650	800	1000
D.O. ppm	7.4	7.6	7.6	7.5	7.6	7.5
pH Std .units	8.3	8.3	8.3	8.4	8.4	8.5
Temp. °C	25.0	24.0	24.0	24.0	24.0	24.0

APPENDIX I

RAW DATA

02 December – 06 December 2003

RESULTS OF TWO ACUTE TOXICITY EVALUATIONS OF
RUTGERS ORGANICS CORPORATION,
SALEM SITE LAGOON WATER TREATMENT PLANT
FINAL EFFLUENT

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 51-01-67

Start Date/Time: 12-2-03 1315

Species: C. Doria

End Date/Time: 12-4-03 1400

Dilution Water: EPA mod Hard

Test Type: 48hr. SNR

Conc. %	Temperature (C)		
	0 hr.	24 hr.	48 hr.
Control	25.0	25.5	25.0
10	25.0	25.5	24.0
18	25.0	25.5	24.0
32	25.0	25.5	24.0
56	25.0	25.5	24.0
100	25.0	25.5	24.0
Conc. %	pH (Stand units)		
	0 hr.		48 hr.
Control	7.9		8.3
10	8.1		8.3
18	8.3		8.3
32	8.5		8.4
56	8.7		8.4
100	8.9		8.8
Conc.	Dissolved Oxygen (mg/L)		
	0 hr.		48 hr.
Control	7.3		7.4
10	7.3		7.6
18	7.3		7.6
32	7.3		7.5
56	7.4		7.6
100	7.7		7.5
Conc.	Conductivity (umhos)		
	0 hr.		48 hr.
Control	290		330
10	350		420
18	390		460
32	460		650
56	700		800
100	950		1000
Initials	TRD	MP	AP
Date	12/2	12/3	12/4

Conc.	Alkalinity	Hardness
Control	70	90
100%	150	320
Initials	TRD	TRD
Date	12/2	12/2

Conc. %	Rep.	Live Count		
		0 hr.	24 hr.	48 hr.
Control	A	5	5	5
	B	5	5	5
	C	5	5	5
	D	5	5	5
10	A	5	5	5
	B	5	5	5
	C	5	5	5
	D	5	5	5
18	A	5	5	5
	B	5	5	5
	C	5	5	5
	D	5	5	5
32	A	5	5	5
	B	5	5	5
	C	5	5	5
	D	5	5	4
56	A	5	5	5
	B	5	5	5
	C	5	5	5
	D	5	5	5
100	A	5	5	5
	B	5	5	5
	C	5	5	5
	D	5	5	5
Initials		MP	MP	MP
Date		12/2	12/3	12/4

Observations: chlorine 0.00 mg/L

Freshwater Acute Test

American Aquatic Testing, Inc.

Job #: 51-01-67

Start Date/Time: 12-2-03 1315

Species: P. promelas

End Date/Time: 12-6-03 1315

Dilution Water: EPA red Hard

Test Type: 96hr SNR

Concentration	Rep.	Live Count					Temperature (C)				
		0 hr.	24 hr.	48 hr.	72 hr.	96 hr.	0 hr.	24 hr.	48 hr.	72 hr.	96 hr.
Control	A	10	10	10	10	10	25.0	25.5	25.0	25.0	25.0
	B	10	10	10	10	10	25.0	25.5	25.0	25.0	25.0
10%	A	10	10	10	10	10	25.0	25.5	25.0	25.0	25.0
	B	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
18%	A	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
	B	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
32%	A	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
	B	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
56%	A	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
	B	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
100%	A	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
	B	10	10	10	10	10	25.0	25.5	25.0	24.5	25.0
Initials		MD	MP	MP	JP	MDP	MDP	MP	MP	JP	MDP
Date		12/2	12/3	12/4	12/5	12/6	12/2	12/3	12/4	12/5	12/6

Concentration	pH		D.O. (mg/L)		Cond. (umhos)	
	0 hr.	96 hr.	0 hr.	96 hr.	0 hr.	96 hr.
Control	7.9	7.9	7.3	7.4	290	310
10%	8.1	7.9	7.3	7.3	350	370
18%	8.3	7.9	7.3	7.2	340	400
32%	8.5	8.1	7.3	7.2	460	460
56%	8.7	8.3	7.4	7.2	700	700
100%	8.9	8.4	7.7	7.0	950	950
Initials	MDP	MDP	MDP	MDP	MDP	MDP
Date	12/2	12/6	12/2	12/6	12/2	12/6

Concentration	Alkalinity (mg/L)	Hardness (mg/L)
Control	70	90
100%	150	300
Initials	MDP	MDP
Date	12/2	12/2

Observations: chlorine = 0.00 mg/L

QC cont mp 12/2

1105 UNION BLVD.
ALLENTOWN, PA 18103
610 434 9015

Job #: 51-01-67

Client: Rudgers Organics
Address: Salem, OH
Phone #: (330) 332-4834

Client Contact: Dennis Lane

Sample Return to client ☐

Disposal: Lab disposal ☒

[illegible]

1. Collected by AAT personnel ☐ Client personnel ☒ 2. Transported on ice? Yes ☒ No ☐ 3. Received within holding time? Yes ☒ No ☐ 4. Sample matrix is: Liquid ☒ Sediment ☐ Soil ☐ Other ☐

[illegible]

APPENDIX II-

OHIO EPA NPDES BIOMONITORING REPORT FORM

OHIO EPA NPDES BIOMONITORING REPORT FORM

GENERAL INFORMATION

1. Facility Name: Rutgers Organics Corporation
Reporting Date: 05 January 2004
2. Address: 1224 Benton Road
Salem, Ohio 44460
Substantive
3. Ohio EPA Permit Number: Discharge Criteria 4. Application (NPDES) No. _____
5. Facility Contact: Ralph Pearce 6. Phone No.: (800) 458-3434
7. Consultant/Testing Lab Name: American Aquatic testing, Inc.
8. Consultant/Lab Contact: Chris Nally 9. Phone No.: (610) 434-9015
10. Receiving Water(s) of Discharge: Unnamed Tributary of the Middle Fork of Middle Creek.

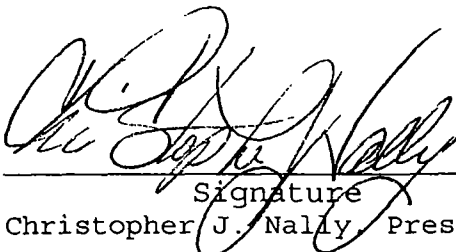
12/01/03

11. Outfall(s) Tested:
- 001

Average Daily Flows:
on Day Sampled (gal/day)

12. Is your current Standard Operating Procedure (SOP) Manual on file with Ohio EPA? (Yes/No) No If yes, date submitted: _____. If no, an SOP that follows Ohio EPA and/or U.S. EPA protocols must be submitted as soon as possible in order to eliminate the need to include this information with every report.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment



Signature
Christopher J. Nally, President

12/31/03

Date

ACUTE TOXICITY TEST SAMPLING DATA

TABLE

Sampling Summary for Acute Toxicity Tests			
Sampling Location & Description	Sample Collection		Weather/Receiving Stream Conditions
	Beginning MM/DD/Time	Ending MM/DD/Time	
Final Effluent:	12/01/03 1100	N/A	
Outfall No.: _____	001		
Type (Grab/Composite):	Grab		
Volume Collected:	1.0-gallon		
Upstream Station:	N/A		
Waterbody:			
Station No.:			
Type (Grab/Composite):			
Volume Collected:			
Downstream Station (Near-field):	N/A		
Waterbody:			
Station No.:			
Type (Grab/Composite):			
Volume Collected:			
Additional Stations (If needed):	N/A		
Waterbody:			
Station No.:			
Type (Grab/Composite):			
Volume Collected:			
Waterbody:			
Station No.:			
Type (Grab/Composite):			
Volume Collected:			

TOXICITY TEST CONDITIONS

TABLE

Summary of Toxicity Test Conditions	
1. Test Species and Age:	<i>Pimephales promelas</i> - 14 days old
2. Test Type and Duration:	96-hour Static Acute
3. Test Dates:	02 - 06 December 2003
4. Test Temperature (°C):	25.0°C ± 1.0°C
5. Light Quality:	50-100 ft. candles
6. Photoperiod:	16 hours light / 8 hours dark
7. Feeding Regime:	None
8. Size of Test Vessel:	1000 mL
9. Volume and Depth of Test Solutions:	500 mL / 92 mm
10. No. of Test Organisms per Test Vessel:	Ten
11. No. of Test Vessels per Test Solution:	Two
12. Total No. of Test Organisms per Test Solution:	20
13. Test Concentrations (as percent by volume effluent):	0, 10, 18, 32, 56, and 100%
14. Renewal of Test Solutions:	None
15. Dilution and Primary Control Water:	Moderately Hard Reconstituted Water
16. Secondary Control Water:	N/A
17. Aeration? Before/During Test:	None
18. Endpoints Measured:	LC ₅₀ and TU _a
19. If secondary control water used as diluent due to toxicity in primary control water, indicate number of consecutive tests conducted with alternative diluent:	N/A

ACUTE TOXICITY TEST RESULTS

TABLE

Results of a <u>Pimephales</u> <u>promelas</u> <u>96</u> -Hour Static Acute Toxicity Test (genus) (species)								
Conducted <u>12/02/03</u> - <u>12/06/03</u> Using Effluent from Outfall <u>001</u> (mm/dd/yy) (mm/dd/yy) (number)								
Test Solutions	Cumulative Percent Mortality (Cumulative Percent Affected) ^a				LC ₅₀ Values (EC ₅₀ Values)			
	24-Hr	48-Hr	72-Hr	96-Hr	24-Hr	48-Hr	72-Hr	96-Hr
Primary Control/ Dilution Water	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>>100%</u> (<u>N/A</u>)	<u>>100%</u> (<u>N/A</u>)	<u>>100%</u> (<u>N/A</u>)	<u>>100%</u> (<u>N/A</u>)
Secondary Control	<u>N/A</u> ()	()	()	()	LC ₅₀ 95% Confidence Limits (EC ₅₀ 95% Confidence Limits)			
<u>10 %</u> Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	24-Hr	48-Hr	72-Hr	96-Hr
<u>18 %</u> Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	LL <u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>32 %</u> Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	UL <u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
<u>56 %</u> Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	LL (<u>N/A</u>)	()	()	()
					UL (<u>N/A</u>)	()	()	()
<u>100 %</u> Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	LL = Lower Limit UL = Upper Limit			
Near-Field Sample	<u>N/A</u> ()	()	()	()	Calculated TU _a Value: <u>1.0</u>			
					Method(s) Used to Determine LC ₅₀ , EC ₅₀ , and Confidence Limit Values: Visual Inspection			

^a-cumulative percent affected is the total percentage of test organisms observed dead, immotile, exhibiting loss of equilibrium, or other defined endpoints (specify below):

TOXICITY TEST CONDITIONS

TABLE

Summary of Toxicity Test Conditions	
1. Test Species and Age:	<i>Ceriodaphnia dubia</i> - <24-hours old
2. Test Type and Duration:	48-hour Static Acute
3. Test Dates:	02 - 04 December 2003
4. Test Temperature (°C):	25.0°C ± 1°C
5. Light Quality:	50-100 ft candles
6. Photoperiod:	16 hours light / 8 hours dark
7. Feeding Regime:	None
8. Size of Test Vessel:	30 mL
9. Volume and Depth of Test Solutions:	25 mL / 25 mm
10. No. of Test Organisms per Test Vessel:	Five
11. No. of Test Vessels per Test Solution:	Four
12. Total No. of Test Organisms per Test Solution:	20
13. Test Concentrations (as percent by volume effluent):	0, 10, 18, 32, 56, and 100%
14. Renewal of Test Solutions:	None
15. Dilution and Primary Control Water:	Moderately Hard Reconstituted Water
16. Secondary Control Water:	N/A
17. Aeration? Before/During Test:	None
18. Endpoints Measured:	LC ₅₀ and TU _a
19. If secondary control water used as diluent due to toxicity in primary control water, indicate number of consecutive tests conducted with alternative diluent:	N/A

ACUTE TOXICITY TEST RESULTS

TABLE

Results of a <u>Ceriodaphnia</u> <u>dubia</u> <u>48</u> -Hour Static Acute Toxicity Test (genus) (species)									
Conducted <u>12/02/03</u> - <u>12/04/03</u> Using Effluent from Outfall <u>001</u> (mm/dd/yy) (mm/dd/yy) (number)									
Test Solutions	Cumulative Percent Mortality (Cumulative Percent Affected) ^a				LC ₅₀ Values (EC ₅₀ Values)				
	24-Hr	48-Hr	72-Hr	96-Hr	24-Hr	48-Hr	72-Hr	96-Hr	
Primary Control/ Dilution Water	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	()	()	<u>>100%</u> (<u>N/A</u>)	<u>>100%</u> (<u>N/A</u>)	()	()	
Secondary Control	<u>N/A</u> ()	()	()	()	LC ₅₀ 95% Confidence Limits (EC ₅₀ 95% Confidence Limits)				
<u>10</u> % Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	()	()	24-Hr	48-Hr	72-Hr	96-Hr	
<u>18</u> % Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	()	()	LL <u>N/A</u>	<u>N/A</u>			
<u>32</u> % Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	()	()	UL <u>N/A</u>	<u>N/A</u>			
<u>56</u> % Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	()	()	LL (<u>N/A</u>)	(<u>N/A</u>)	()	()	
<u>100</u> % Effluent	<u>0</u> (<u>0</u>)	<u>0</u> (<u>0</u>)	()	()	UL (<u>N/A</u>)	(<u>N/A</u>)	()	()	
Near-Field Sample	<u>N/A</u> ()	()	()	()	LL = Lower Limit UL = Upper Limit				
					Calculated TU _a Value: <u>1.0</u>				
					Method(s) Used to Determine LC ₅₀ , EC ₅₀ , and Confidence Limit Values: Visual Inspection				

^a-cumulative percent affected is the total percentage of test organisms observed dead, immotile, exhibiting loss of equilibrium, or other defined endpoints (specify below):

Attachment 5

**Results of Two Chronic Toxicity Evaluations
December 6 through December 16, 2003
Nease Chemical Site, Salem, Ohio**

RESULTS OF TWO CHRONIC TOXICITY EVALUATIONS OF
RUTGERS ORGANICS CORPORATION,
SALEM SITE LAGOON WATER TREATMENT PLANT
FINAL EFFLUENT

AAT JOB # 51 - 01 - 67

09 – 16 December 2003

Report Prepared for:

Rutgers Organics Corporation
201 Struble Road
State College, Pennsylvania 16801

Report Prepared by:

AMERICAN AQUATIC TESTING, INC.
1105 UNION BLVD.
SECOND FLOOR EAST
ALLENTOWN, PENNSYLVANIA 18109

INTRODUCTION

A set of two 7-day daily renewal chronic toxicity tests were conducted with larval fathead minnows, *Pimephales promelas* (*P. promelas*) and the freshwater cladoceran, *Ceriodaphnia dubia* (*C. dubia*) to determine the relative toxicity of final effluent from the Rutgers Organics Corporation Lagoon Water Treatment Plant, Salem, Ohio. The larval fathead survival and growth chronic test and the *C. dubia* survival and reproduction test were conducted from 09 through 16 December 2003. The toxicity evaluations were conducted by American Aquatic Testing, Inc., Allentown, Pennsylvania.

All tests were performed according to procedures outlined in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, 4th Edition (EPA/600/4-90/027F), Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Third Edition (EPA/600/4-19/002) and Reporting and Testing Guidance for Biomonitoring Required by the Ohio Environmental Protection Agency, October 1991.

MATERIALS

TEST ORGANISMS Fathead Minnow, *Pimephales promelas*

Larval fathead minnows used in chronic testing were obtained from cultures maintained in house at ABS, Inc. Test age organisms are maintained in shallow depth basins containing 10L of moderately hard reconstituted water and are fed newly hatched *Artemia* (brine shrimp) nauplii twice a day up until test initiation. The test organisms were < 48 hours old at test initiation. No acclimation of these test organisms was required as they were raised in moderately hard reconstituted water, which was used for testing.

Freshwater Cladoceran, *Ceriodaphnia dubia*

Cladoceran neonates, *C. dubia* were obtained from AAT, Inc.'s in-house cultures. Cultures for generating test age (<24 hours old) neonates are maintained as single cultures in 30 mL soufflé cups containing 15 mL of moderately hard reconstituted water. These adults are transferred daily into fresh culture water and are fed a combination of a unicellular green alga (*Selenastrum capricornutum*) and a yeast/Cerophyll/trout chow (YCT) suspension. Broods released during an 8-hour period were pooled and used to initiate the chronic toxicity test. No acclimation of these test organisms was required as they were raised in moderately hard reconstituted water, which was used for testing. Neonates were released between 0900 and 1400 of 09 December 2003.

DILUTION WATER

Moderately hard reconstituted water was prepared in accordance to procedures outlined in EPA/600/4-90/027F and was used as dilution/control water for the toxicity tests. Deionized water (Specialty Filtration Products) and reagent grade chemicals were used to achieve the following concentrations: 96 mg/L of NaHCO₃, 60.0 mg/L of MgSO₄ and 4.0 mg/L of KCl and 60.0mg/L of CaSO₄ 2H₂O.

TEST MATERIAL

The material tested was final effluent collected by Howells and Baird personnel with a grab sampler placed at the outfall. Three grab samples were collected for each of the two chronic toxicity tests.

The sample collected December 08, 2003 was used to initiate the two chronic tests on December 09, 2002 and for renewal on Day 02. The sample collected December 10, 2003 was used for chronic renewals on Days 03 and 04. The third sample collected December 12, 2003 was used for renewals on Days 05, 06 & 07. Chain-of-Custody forms accompanied the samples. Tests were initiated prior to the expiration of the 36-hour holding time.

METHODS

P. promelas larvae (<48 hours old) were exposed to the effluent samples for seven days under static, daily renewal conditions. Test organisms were exposed in groups of 10 in 1 L glass beakers containing 500 mL of test solution with four replicates per concentration (40 organisms per concentration). The test organisms were fed twice each day with *Artemia* nauplii from test initiation until day six. The test organisms were not fed for the last 16 hours of the test. Daily observations were made during test material exchange and the numbers of live animals were recorded on the appropriate benchsheets. Any dead animals were removed from the test chambers.

The fathead larval test was terminated at the end of seven days. All live test organisms from each replicate chamber were counted, rinsed with deionized water and transferred as a group to a pre-weighed aluminum pan. Pans with test organisms were dried at 105.0 °C for a minimum of six hours before being placed in a dessicator to cool. Each pan was weighed to the nearest 0.01 mg and the average test organism weight was determined by dividing by the original number of test organisms present (10).

C. dubia neonates (<24 hours old) were exposed to the effluent sample for seven days under static, renewal conditions. Test organisms were exposed individually in 30 mL soufflé cups containing 15 mL of test solution with 10 replicates per concentration (10 organisms per concentration). At test material renewal, the test organisms were fed a combination of YCT (yeast, Cerophyll and trout-chow) and the green alga, *S. capricornutum*, daily during the test exposure. Daily observations of the number of live animals were made as well as the number of neonates produced and recorded on the appropriate benchsheets.

The *C. dubia* test was terminated at six days. The total number of neonates produced at each concentration was divided by the number of adult test organisms present to determine the average number of neonates produced.

Both sets of test chambers were placed in randomized positions in a temperature controlled environment maintained at 25 ± 1 °C for the duration of the test exposure period. The highest concentration used for exposure was 100 %. A 0.30 dilution schedule was used to prepare sample concentrations of 30%, 10%, 3% and 1%, by volume. A control sample consisting of 100 % dilution water was also tested.

RESULTS

FATHEAD MINNOW SURVIVAL AND GROWTH

An NOEC (No-Observable-Effect-Concentration) value of >100% for survival was produced. An NOEC value of >100% for growth was produced. As a result, the TUC for this test is 1.0 (100%/NOEC), for the growth endpoint.

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

An NOEC value of >100% for survival was produced. An NOEC value of >100% for reproduction was produced. As a result, the TUC for this test is 1.0 (100%/NOEC), for the reproduction endpoint.

Table I. Fathead Minnow Physical/Chemical Measurements Summary
 CLIENT: Rutgers Organics Corp., Salem Lagoon Water Treatment Plant
 TEST: 7-Day Chronic Toxicity Test
 DATE: 09 – 16 December 2003

CONC.	Temp. ° C		pH Std. Units		D. O. ppm		Cond. µmhos	
	Min	Max	Min	Max	Min	Max	Min	Max
Control	24.0	25.0	7.8	8.3	6.4	8.3	285	300
1%	24.0	25.0	7.8	8.3	6.6	8.3		
3%	24.0	25.0	7.8	8.2	6.6	8.3		
10%	24.0	25.0	7.9	8.2	6.6	8.1		
30%	24.0	25.0	7.9	8.3	6.7	7.9		
100%	24.0	25.0	8.1	8.5	6.2	8.0	850	1000

SAMPLE	Alkalinity mg/L		Hardness mg/L		Chlorine mg/L	
	0 %	100 %	0 %	100 %	0 %	100 %
01	70	210	90	340	0	0.00
02	70	230	90	360	0	0.00
03	70	220	90	370	0	0.00

Table II. *Ceriodaphnia dubia* Physical/Chemical Measurements Summary
 CLIENT: Rutgers Organics Corp., Salem Lagoon Water Treatment Plant
 TEST: 7-Day Chronic Toxicity Test
 DATE: 9 – 15 December 2003

CONC.	Temp. ° C		pH Std. Units		D. O. ppm		Cond. µmhos	
	Min	Max	Min	Max	Min	Max	Min	Max
Control	24.0	25.0	7.7	8.3	7.1	8.3	285	300
1%	24.0	25.0	7.7	8.2	7.1	8.3		
3%	24.0	25.0	7.8	8.2	7.5	8.3		
10%	24.0	25.0	7.8	8.3	7.1	8.1		
30%	24.0	25.0	7.9	8.4	7.2	8.0		
100%	24.0	25.0	8.1	8.6	6.2	8.1	850	1000

SAMPLE	Alkalinity mg/L		Hardness mg/L		Chlorine mg/L	
	0 %	100 %	0 %	100 %	0 %	100 %
01	70	210	90	340	0	0.00
02	70	230	90	360	0	0.00
03	70	220	90	370	0	0.00

APPENDIX I

RAW DATA

RESULTS OF TWO CHRONIC TOXICITY EVALUATIONS OF
RUTGERS ORGANICS CORPORATION,
SALEM SITE LAGOON WATER TREATMENT PLANT
FINAL EFFLUENT

09 -16 December 2003

Client/Toxicant: 51
 Project Number: 01-67
 Species: P. promelas

Beginning Date & Time: 12/9/03 18:15
 Ending Date & Time: 12/16/03 1800
 Hatch Date: 12-8-03

Chronic Test
American Aquatic Testing, Inc.
Live Count

Conc.	Rep	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Control	A	10	10	10	9'	8'	8	8	8
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	9'
	D	10	10	10	10	10	10	10	10
1	A	10	10	10	9'	9	9	9	9
	B	10	10	10	10	10	10	10	9'
	C	10	10	10	9'	9	9	9	9
	D	10	10	10	10	10	10	10	10
3	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	10	10	10
	D	10	10	10	10	10	10	10	9'
10	A	10	9'	9	9	9	9	9	9
	B	10	10	10	10	10	10	10	10
	C	10	10	10	10	10	9'	9	9
	D	10	10	10	10	10	10	10	10
30	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	9'	9	9	9
	C	10	9'	9	8'	8	8	8	7'
	D	10	10	10	10	10	10	10	10
100	A	10	10	10	10	10	10	10	10
	B	10	10	10	10	10	10	10	10
	C	10	10	9'	9	9	9	9	9
	D	10	10	10	10	10	10	10	10
	A								
	B								
	C								
	D								
Initials		<u>JP</u>	<u>JP</u>	<u>JP</u>	<u>JP</u>	<u>JP</u>	<u>JP</u>	<u>JP</u>	<u>JP</u>
Date		<u>12/09</u>	<u>12/10</u>	<u>12/11</u>	<u>12/12</u>	<u>12/13</u>	<u>12/14</u>	<u>12/15</u>	<u>12/16</u>

Observations: LAST FEEDING, 12/15/03 1900

Client/Toxicant: 51
 Project Number: 01-67
 Species: P. promelas

Beginning Date & Time: 12/09/03 1815
 Ending Date & Time: 12-16-03 1800
 Hatch Date: 12-8-03

Chronic Test
American Aquatic Testing, Inc.
Weight Data

% Conc.	Rep	Pan #	A weight of boat (g)	B weight of boat & fish (g)	(B-A)*1000=C dry weight of fish (mg)	D # of surviving fish	C/D mean dry weight (mg)	C/E IC ₂₅ & NOEC calc. weight (mg)
Control	A	1	.01000	0.01267	2.67	8	0.334	0.267
	B	2	.01064	0.01517	4.53	10	0.453	0.453
	C	3	.01025	0.01352	3.27	9	0.363	0.327
	D	4	.00932	0.01297	3.65	10	0.365	0.365
1%	A	5	.01003	0.01357	3.54	9	0.354	0.354
	B	6	.00981	0.01372	3.91	9		0.391
	C	7	.00994	0.01365	3.71	9		0.371
	D	8	.00984	0.01360	3.76	10		0.376
3%	A	9	.00951	0.01385	4.34	10		0.434
	B	10	.00977	0.01376	3.99	10		0.399
	C	11	.00947	0.01354	4.07	10		0.407
	D	12	.00883	0.01253	3.70	9		0.370
10%	A	13	.00975	0.01346	3.71	9		0.371
	B	14	.00959	0.01325	3.66	10		0.366
	C	15	.00849	0.01189	3.40	9		0.340
	D	16	.01375	0.01695	3.20	10		0.320
30%	A	17	.00877	0.01217 ^①	5.91 ^③	10		0.591 ^④
	B	18	.01063	0.01217 ^①	3.95 ^⑤	9		0.395 ^⑥
	C	19	.00977	0.01232	2.55	7		0.255
	D	20	.01090	0.01461	3.71	10		0.371
100%	A	21	.00981	0.01334	3.53	10		0.353
	B	22	.01020	0.01436	4.16	10		0.416
	C	23	.00992	0.01332	3.40	9		0.340
	D	24	.01095	0.01517	4.22	10		0.422
	A							
	B							
	C							
	D							
Initials			JP	JF	JF	JF	JF	JF
Date			12/16	12/17	12/17	12/17	12/17	12/17

E = Original number of organisms at test initiation, adjusted for losses.

Observations: ① 0.01468 ② 0.01217 ③ 3.40 ④ 0.340 JF 12/17
 ⑤ 4.05 ⑥ .405 JP 12/18

Species:

Ending Date & Time:

Initial Readings

Parameter	Concentration	1	2	3	4	5	6	7	8
Temp (°C)	Control	25.0	25.0	25.0	25.0	24.0	25.0	25.0	
	1%	25.0	25.0	25.0	25.0	24.0	25.0	25.0	
	3%	25.0	25.0	25.0	25.0	24.0	25.0	25.0	
	10%	25.0	25.0	25.0	25.0	24.0	25.0	25.0	
	30%	25.0	25.0	25.0	25.0	24.0	25.0	25.0	
	100%	25.0	25.0	25.0	25.0	24.0	25.0	25.0	
Dissolved Oxygen (mg/L)	Control	8.3	8.3	8.3	7.9	7.1	8.1	7.6	
	1%	8.3	8.3	8.3	7.9	7.1	8.1	7.6	
	3%	8.2	8.3	8.1	7.9	7.1	8.0	7.6	
	10%	8.0	8.1	8.0	7.8	7.1	7.9	7.6	
	30%	7.8	7.9	7.8	7.6	7.2	7.7	7.6	
	100%	7.3	6.5	6.2	6.3	8.0	6.5	7.8	
pH	Control	7.9	8.0	8.0	8.1	8.2	8.3	8.3	
	1%	7.9	8.0	8.0	8.1	8.2	8.2	8.3	
	3%	7.9	8.0	8.0	8.1	8.2	8.2	8.2	
	10%	8.0	7.9	8.0	8.1	8.2	8.2	8.2	
	30%	8.1	7.9	8.0	8.1	8.2	8.2	8.2	
	100%	8.3	8.2	8.1	8.1	8.1	8.2	8.2	
	Initials	MP	MP	MP	MP	MP	MP	MP	
	Date	12/9	12/10	12/11	12/12	12/13	12/14	12/15	

Final Readings

Parameter	Concentration	1	2	3	4	5	6	7	8
Temperature (°C)	Control	24.0	24.0	24.5	24.5	24.0	24.0	24.0	
	1%	24.0	24.0	24.5	24.5	24.0	24.0	24.0	
	3%	24.0	24.0	24.5	24.5	24.0	24.0	24.0	
	10%	24.0	24.0	24.5	24.5	24.0	24.0	24.0	
	30%	24.0	24.0	24.5	24.5	24.0	24.0	24.0	
	100%	24.0	24.0	24.5	24.5	24.0	24.0	24.0	
Dissolved Oxygen (mg/L)	Control	8.0	7.3	7.0	7.9	7.2	6.4	7.0	
	1%	7.8	7.4	6.9	7.9	7.2	6.6	7.0	
	3%	7.8	7.3	6.8	7.9	7.2	6.6	7.0	
	10%	7.9	7.4	7.0	7.9	7.3	6.6	7.0	
	30%	7.9	7.5	7.0	7.9	7.4	6.7	7.3	
	100%	7.8	7.3	7.0	7.9	7.5	6.7	7.2	
pH	Control	7.8	7.8	7.8	8.0	8.1	7.9	8.0	
	1%	7.8	7.8	7.8	8.0	8.1	7.9	7.9	
	3%	7.8	7.9	7.8	8.0	8.0	7.9	7.9	
	10%	7.9	7.9	7.9	8.1	8.0	8.1	7.9	
	30%	8.1	8.1	7.9	8.3	8.2	8.1	7.9	
	100%	8.4	8.5	8.3	8.5	8.4	8.5	8.3	
PWCHPAPR wk3	Initials	MP	MP	JF	MP	JF	JF	JF	
	Date	12/10	12/11	12/12	12/13	12/14	12/15	12/16	

Conductivity ($\mu\text{mhos/cm}$)		
Date	Control	100%
12/9	285	850
12/11	300	1000
12/13	285	950
Initials	MP	MP

Alkalinity (mg/L as CaCO_3)		
Date	Control	100%
12/9	70	210
12/11	70	230
12/13	70	220

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370

Hardness (mg/L as CaCO_3)		
-------------------------------------	--	--

Chlorine (mg/L)		
Date	Control	100%
12/9	0.00	0.00
12/11	0.00	0.00
12/13	0.00	0.00
NaSO ₄ Added (mg/L)		
Date	Control	100%
Initials	MP	MP

Observations:

Larval Fish Growth and Survival Test-7 Day Survival

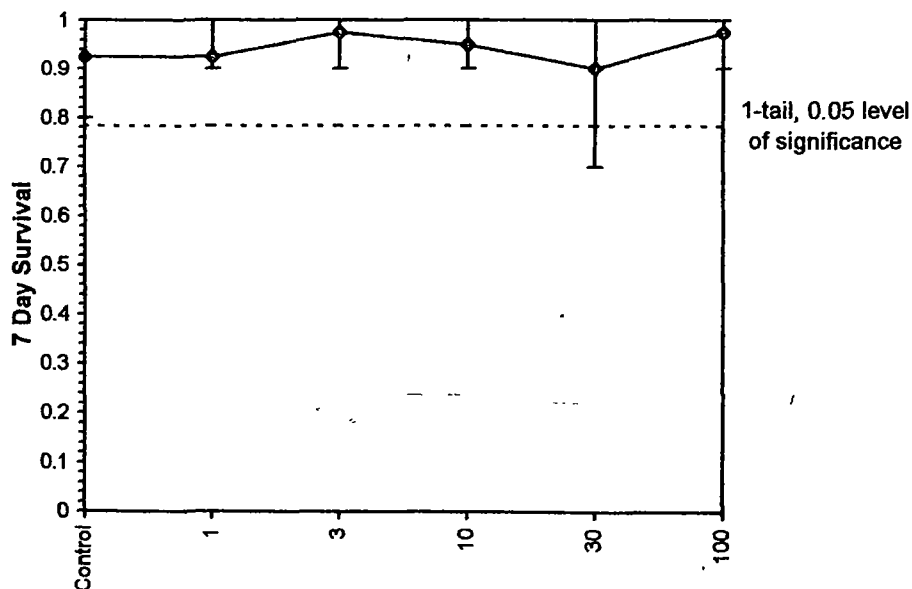
Start Date: 12/9/2003	Test ID: 510167PpCh	Sample ID: RUTGERS FI
End Date: 12/16/2003	Lab ID: AAT, INC.	Sample Type: 24 HR COMP
Sample Date:	Protocol: EPAF 94-EPA Freshwater	Test Species: PP-Pimephales promelas
Comments:		

Conc-%	1	2	3	4
Control	0.8000	1.0000	0.9000	1.0000
1	0.9000	0.9000	0.9000	1.0000
3	1.0000	1.0000	1.0000	0.9000
10	0.9000	1.0000	0.9000	1.0000
30	1.0000	0.9000	0.7000	1.0000
100	1.0000	1.0000	0.9000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root					t-Stat	1-Tailed Critical	MSD
			Mean	Min	Max	CV%	N			
Control	0.9250	1.0000	1.2951	1.1071	1.4120	11.347	4			
1	0.9250	1.0000	1.2898	1.2490	1.4120	6.318	4	0.061	2.410	0.2085
3	0.9750	1.0541	1.3713	1.2490	1.4120	5.942	4	-0.881	2.410	0.2085
10	0.9500	1.0270	1.3305	1.2490	1.4120	7.072	4	-0.410	2.410	0.2085
30	0.9000	0.9730	1.2661	0.9912	1.4120	15.650	4	-0.335	2.410	0.2085
100	0.9750	1.0541	1.3713	1.2490	1.4120	5.942	4	-0.881	2.410	0.2085

Auxiliary Tests					Statistic	Critical	Skew	Kurt						
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)					0.93943	0.884	-0.737	0.31162						
Bartlett's Test indicates equal variances (p = 0.50)					4.32947	15.0863								
Hypothesis Test (1-tail, 0.05)					NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test					100	>100		1	0.14264	0.15406	0.00785	0.01498	0.75501	5, 18
Treatments vs Control														

Dose-Response Plot



Larval Fish Growth and Survival Test-7 Day Biomass

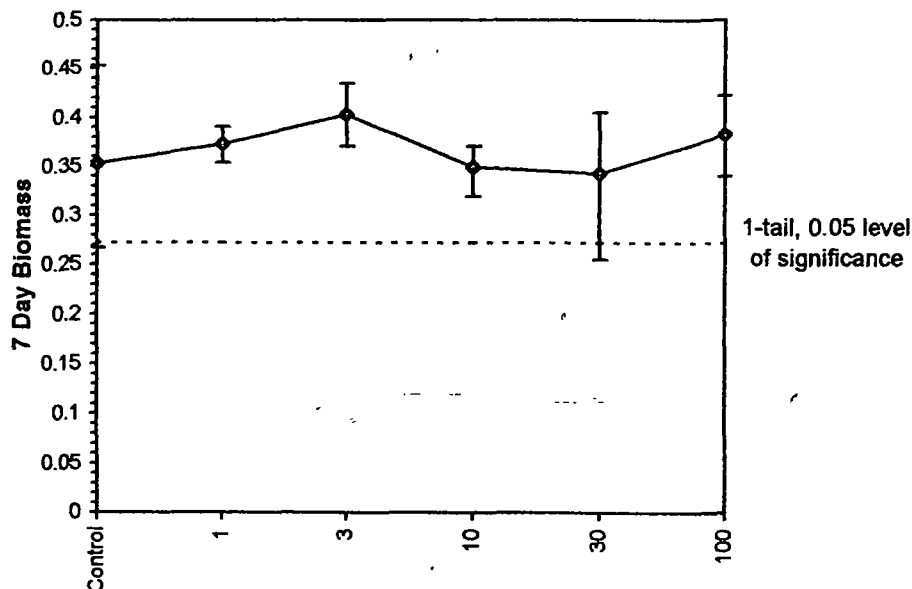
Start Date: 12/9/2003	Test ID: 510167PpCh	Sample ID: RUTGERS FI
End Date: 12/16/2003	Lab ID: AAT, INC.	Sample Type: 24 HR COMP
Sample Date:	Protocol: EPAF 94-EPA Freshwater	Test Species: PP-Pimephales promelas
Comments:		

Conc-%	1	2	3	4
Control	0.2670	0.4530	0.3270	0.3650
1	0.3540	0.3910	0.3710	0.3760
3	0.4340	0.3990	0.4070	0.3700
10	0.3710	0.3660	0.3400	0.3200
30	0.3400	0.4050	0.2550	0.3710
100	0.3530	0.4160	0.3400	0.4220

Conc-%	Transform: Untransformed							1-Tailed		
	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
Control	0.3530	1.0000	0.3530	0.2670	0.4530	22.075	4			
1	0.3730	1.0567	0.3730	0.3540	0.3910	4.089	4	-0.597	2.410	0.0808
3	0.4025	1.1402	0.4025	0.3700	0.4340	6.543	4	-1.477	2.410	0.0808
10	0.3493	0.9894	0.3493	0.3200	0.3710	6.805	4	0.112	2.410	0.0808
30	0.3428	0.9710	0.3428	0.2550	0.4050	18.743	4	0.306	2.410	0.0808
100	0.3828	1.0843	0.3828	0.3400	0.4220	11.042	4	-0.888	2.410	0.0808

Auxiliary Tests					Statistic		Critical	Skew	Kurt					
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)					0.96807		0.884	-0.0553	0.9731					
Bartlett's Test indicates equal variances (p = 0.10)					9.15896		15.0863							
Hypothesis Test (1-tail, 0.05)					NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test					100	>100		1	0.08076	0.22879	0.00211	0.00225	0.47816	5, 18
Treatments vs Control														

Dose-Response Plot



Project Number: 51-01-67Beginning Date & Time: 12-9-03 1440Ending Date & Time: 12-15-03 1500***Ceriodaphnia dubia*, Survival and Reproduction Test**

American Aquatic Testing, Inc.,

Survival / Reproduction Data

Day	Conc.		Replicate										Initials
	Control		1	2	3	4	5	6	7	8	9	10	
1	N	B	0	0	0	0	0	0	0	0	0	0	MP
2	N	B	0	0	0	0	0	0	0	0	0	0	MP
3	N	B	0	61	0	61	0	61	61	61	61	81	JF
4	N	B	61	0	61	0	71	0	0	0	0	0	MP
5	N	B	122	132	102	122	132	112	142	122	142	122	MP
6	N	B	0	153	123	183	203	203	203	163	173	163	MP
7	N	B											
8	N	B											
Tot N	Tot B		182	343	283	363	403	373	403	343	373	363	Tot A
													10

Average Neonates per Female = 34.0% Females with 3rd Brood = 90

Day	Conc.		Replicate										Initials
			1	2	3	4	5	6	7	8	9	10	
1	N	B	0	0	0	0	0	0	0	0	0	0	MP
2	N	B	0	0	0	0	0	0	0	0	0	0	MP
3	N	B	0	0	0	61	61	0	81	81	61	0	JF
4	N	B	81	71	71	0	0	61	0	0	0	61	MP
5	N	B	0	112	132	122	122	132	132	102	122	132	MP
6	N	B	122	0		183	183	163	213	193	143	153	MP
7	N	B											
8	N	B											
Tot N	Tot B		202	182	202	363	363	353	423	373	323	343	Tot A
													10

Average Neonates per Female = 31.0% Females with 3rd Brood = 70

Day	Conc.		Replicate										Initials
	3		1	2	3	4	5	6	7	8	9	10	
1	N	B	0	0	0	0	0	0	0	0	0	0	MP
2	N	B	0	0	0	0	0	0	0	0	0	0	MP
3	N	B	81	61	61	81	61	61	61	61	51	61	JF
4	N	B	0	0	0	0	0	0	0	0	0	0	MP
5	N	B	132	132	132	112	122	82	142	152	142	142	MP
6	N	B	153	153	223	173	143	153	163	193	193	183	MP
7	N	B											
8	N	B											
Tot N	Tot B		363	343	413	363	323	293	363	403	383	383	Tot A
													10

Average Neonates per Female = 36.0% Females with 3rd Brood = 100

(N=Neonates, B=Broods, A=Alive)

Observations:

Project Number: 51-01-67Beginning Date & Time: 12-9-03 1440Ending Date & Time: 12-15-03 1500*Ceriodaphnia dubia*, Survival and Reproduction Test

American Aquatic Testing, Inc.,

Survival / Reproduction Data

Day	Conc.		Replicate										Initials
	10		1	2	3	4	5	6	7	8	9	10	
1	N	B	0	0	0	0	0	0	0	0	0	0	MP
2	N	B	0	0	0	0	0	0	0	0	0	0	MP
3	N	B	0	6	1	8	1	6	1	8	1	0	JF
4	N	B	9	1	0	0	0	0	8	1	0	0	MP
5	N	B	13	2	14	2	12	2	13	2	12	2	MP
6	N	B	0	18	3	14	3	18	3	21	3	0	MP
7	N	B											
8	N	B											
Tot N	Tot B		22	2	38	3	34	3	36	3	42	3	Tot A
													10

Average Neonates per Female = 33.9% Females with 3rd Brood = 80

Day	Conc.		Replicate										Initials
	30		1	2	3	4	5	6	7	8	9	10	
1	N	B	0	0	0	0	0	0	0	0	0	0	MP
2	N	B	0	0	0	0	0	0	0	0	0	0	MP
3	N	B	0	4	1	6	1	6	1	6	1	0	JF
4	N	B	6	1	0	0	12	2	0	0	10	2	MP
5	N	B	0	12	2	14	2	0	13	2	13	2	MP
6	N	B	15	2	16	3	21	3	18	3	20	3	MP
7	N	B											
8	N	B											
Tot N	Tot B		21	2	32	3	41	3	36	3	37	3	Tot A
													10

Average Neonates per Female = 35.0% Females with 3rd Brood = 90

Conc.			Replicate												Inital's										
Day	100		1	2	3	4	5	6	7	8	9	10													
1	N	B	0	0	0	0	0	0	0	0	0	0	MP												
2	N	B	0	0	0	0	0	0	0	0	0	0	MP												
3	N	B	6	1	8	1	8	1	6	1	6	1	6	1	6	JF									
4	N	B	0	0	0	12	2	12	2	0	0	0	0	7	1	MP									
5	N	B	8	2	12	2	14	2	0	13	2	13	2	12	2	10	2	13	2	MP					
6	N	B	0	12	3	19	3	16	3	16	3	17	3	17	3	14	3	14	3	0	MP				
7	N	B																							
8	N	B																							
Tot N			Tot B		14	2	32	3	4	13	34	3	34	3	36	3	36	3	32	3	30	3	20	2	Tot A
10																									

Average Neonates per Female = 30.9% Females with 3rd Brood = 80

(N=Neonates, B=Broods, A=Alive)

Observations:

Client/Toxicant: 51
 Job Number: 01-67
 Species: C. dubia

Beginning Date & Time: 12-9-03 1440
 Ending Date & Time: 12-15-03 1500

Freshwater Chronic Test
American Aquatic Testing, Inc.,
Physical / Chemical Parameters
Initial Readings

Parameter	Concentration	Day							
		1	2	3	4	5	6	7	8
Temperature (°C)	Control	25.0	25.0	25.0	25.0	24.0	25.0		
	1%	25.0	25.0	25.0	25.0	24.0	25.0		
	3%	25.0	25.0	25.0	25.0	24.0	25.0		
	10%	25.0	25.0	25.0	25.0	24.0	25.0		
	30%	25.0	25.0	25.0	25.0	24.0	25.0		
	100%	25.0	25.0	25.0	25.0	24.0	25.0		
Dissolved Oxygen (mg/L)	Control	8.3	8.3	8.3	7.9	7.1	8.1		
	1%	8.3	8.3	8.3	7.9	7.1	8.1		
	3%	8.2	8.3	8.1	7.9	7.1	8.0		
	10%	8.0	8.1	8.0	7.8	7.1	7.9		
	30%	7.8	7.9	7.8	7.6	7.2	7.7		
	100%	7.3	6.5	6.2	6.3	8.0	6.5		
pH	Control	7.9	8.0	8.0	8.1	8.2	8.3		
	1%	7.9	8.0	8.0	8.1	8.2	8.2		
	3%	7.9	8.0	8.0	8.1	8.2	8.2		
	10%	8.0	7.9	8.0	8.1	8.2	8.2		
	30%	8.1	7.9	8.0	8.1	8.2	8.2		
	100%	8.3	8.2	8.1	8.1	8.1	8.2		
Initials		MP	MP	MP	MP	MP	MP		
Date		12/9	12/10	12/11	12/12	12/13	12/14		

Final Readings

Parameter	Concentration	Day							
		1	2	3	4	5	6	7	8
Temperature (°C)	Control	24.0	24.0	25.0	25.0	25.0	25.0		
	1%	24.0	24.0	25.0	25.0	25.0	25.0		
	3%	24.0	24.0	25.0	25.0	25.0	25.0		
	10%	24.0	24.0	25.0	25.0	25.0	25.0		
	30%	24.0	24.0	25.0	25.0	25.0	25.0		
	100%	24.0	24.0	25.0	25.0	25.0	25.0		
Dissolved Oxygen (mg/L)	Control	8.0	7.5	7.7	7.8	7.9	7.5		
	1%	8.0	7.5	7.6	7.8	7.9	7.5		
	3%	8.0	7.5	7.6	7.8	7.9	7.5		
	10%	9.0	7.5	7.8	7.8	7.9	7.5		
	30%	8.0	7.6	7.8	7.9	7.9	7.5		
	100%	8.1	7.6	7.8	7.9	7.9	7.4		
pH	Control	8.0	8.0	7.7	7.8	8.2	8.2		
	1%	8.0	8.0	7.7	7.8	8.2	8.2		
	3%	8.0	8.0	7.8	7.9	8.2	8.2		
	10%	8.0	8.0	7.8	8.1	8.2	8.3		
	30%	8.1	8.0	7.9	8.2	8.4	8.4		
	100%	8.3	8.3	8.2	8.4	8.6	8.6		
Initials		MP	MP	MP	MP	MP	MP		
Date		12/10	12/11	12/12	12/13	12/14	12/15		

PWCHPAPR wk3

Conductivity (µmhos/cm)		
Date	Control	100%
12/9	285	850
12/10	285	1000
12/13	285	950
Initials		
MP		
Alkalinity (mg/L as CaCO ₃)		
Date	Control	100%
12/9	70	210
12/11	70	230
12/13	70	220
Initials		
MP		
Hardness (mg/L as CaCO ₃)		
Date	Control	100%
12/9	90	340
12/11	90	360
12/13	90	370
Initials		
MP		

Chlorine (mg/L)		
Date	Control	100%
12/9	0.00	0.00
12/11	0.00	0.00
12/13	0.00	0.00
NaSO ₄ Added (mg/L)		
Date	Control	100%
12/9		
12/11		
Initials		
MP		

Observations:

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

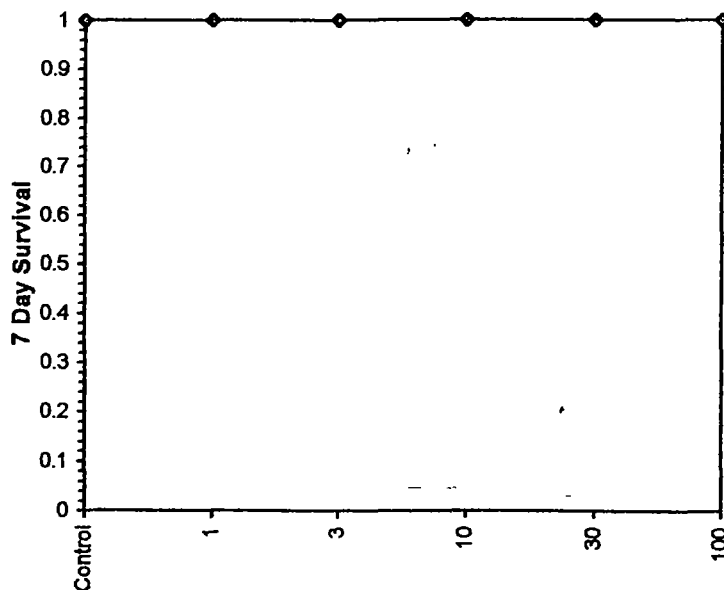
Start Date: 12/9/2003	Test ID: 510167Cdch	Sample ID: RUTGERS FI
End Date: 12/15/2003	Lab ID: AAT	Sample Type: 24 HR COMP
Sample Date:	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments:		

Conc-%	1	2	3	4	5	6	7	8	9	10
Control	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
Control	1.0000	1.0000	0	10	10	10		
1	1.0000	1.0000	0	10	10	10	1.0000	0.0500
3	1.0000	1.0000	0	10	10	10	1.0000	0.0500
10	1.0000	1.0000	0	10	10	10	1.0000	0.0500
30	1.0000	1.0000	0	10	10	10	1.0000	0.0500
100	1.0000	1.0000	0	10	10	10	1.0000	0.0500

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	100	>100		1
Treatments vs Control				

Dose-Response Plot



Ceriodaphnia Survival and Reproduction Test-Reproduction

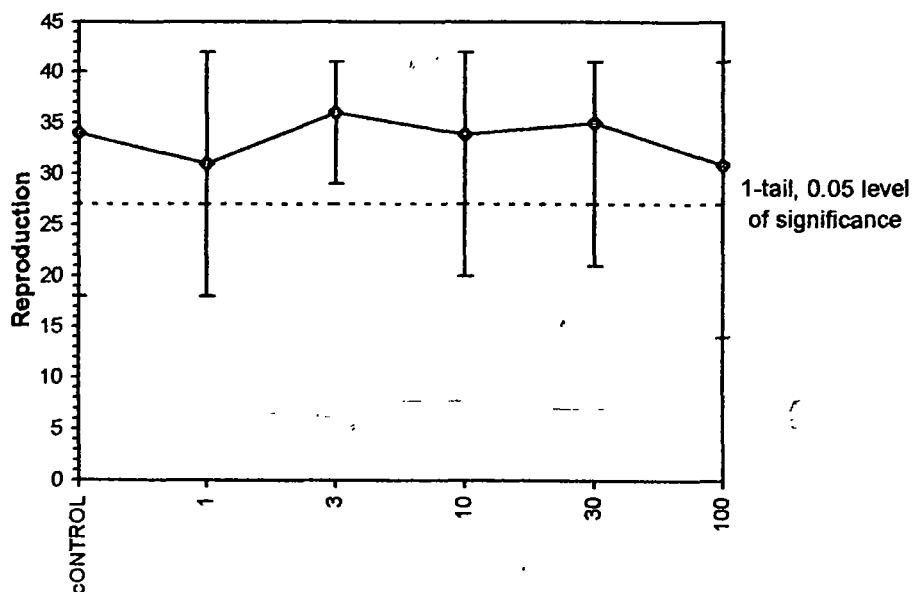
Start Date: 12/9/2003	Test ID: 510167Cdch	Sample ID: RUTGERS FI
End Date: 12/15/2003	Lab ID: AAT	Sample Type: 24 HR COMP
Sample Date:	Protocol: EPAF 94-EPA Freshwater	Test Species: CD-Ceriodaphnia dubia
Comments:		

Conc-%	1	2	3	4	5	6	7	8	9	10
cONTROL	18.000	34.000	28.000	36.000	40.000	37.000	40.000	34.000	37.000	36.000
1	20.000	18.000	20.000	36.000	36.000	35.000	42.000	37.000	32.000	34.000
3	36.000	34.000	41.000	36.000	32.000	29.000	36.000	40.000	38.000	38.000
10	22.000	38.000	34.000	36.000	42.000	20.000	37.000	37.000	34.000	39.000
30	21.000	32.000	41.000	36.000	37.000	39.000	36.000	35.000	32.000	41.000
100	14.000	32.000	41.000	34.000	34.000	36.000	36.000	32.000	30.000	20.000

Conc-%	Mean	N-Mean	Transform: Untransformed				N	t-Stat	1-Tailed	
			Mean	Min	Max	CV%			Critical	MSD
cONTROL	34.000	1.0000	34.000	18.000	40.000	19.361	10			
1	31.000	0.9118	31.000	18.000	42.000	27.287	10	0.984	2.287	6.969
3	36.000	1.0588	36.000	29.000	41.000	10.058	10	-0.656	2.287	6.969
10	33.900	0.9971	33.900	20.000	42.000	21.247	10	0.033	2.287	6.969
30	35.000	1.0294	35.000	21.000	41.000	16.714	10	-0.328	2.287	6.969
100	30.900	0.9088	30.900	14.000	41.000	26.000	10	1.017	2.287	6.969

Auxilliary Tests					Statistic	Critical	Skew	Kurt		
Kolmogorov D Test indicates non-normal distribution (p <= 0.01)					1.83066	1.035	-1.1146	0.58536		
Bartlett's Test indicates equal variances (p = 0.25)					6.61782	15.0863				
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	6.96895	0.20497	43.8267	46.4407	0.46044	5, 54
Treatments vs cONTROL										

Dose-Response Plot



1105 UNION BLVD.
ALLENTOWN, PA 18103
610 434 9015

Job #: 51-01-67

Client: Rudgers Organics
Address: Salem, OH
Phone #: (330) 332-4834

Client Contact: Dennis Lane

Sample Return to client ☐
Disposal: Lab disposal ☒

[illegible]

Samples were:

1. Collected by AAT personnel ☐ Client personnel ☒ 2. Transported on ice? Yes ☒ No ☐ 3. Received within holding time? Yes ☒ No ☐ 4. Sample matrix is: Liquid ☒ Sediment ☐ Soil ☐ Other ☐

[illegible]

1105 UNION BLVD.
ALLENTOWN, PA 18103
610 434 9015

Job #: 51-01-67

Client: Rudgers Organics
Address: Salem, OH
Phone #: (330) 332-4834

Client Contact: Dennis Lane

Sample **Return to client** ☐

Disposal: **Lab disposal** ☒

[illegible]

Samples were

1. Collected by AAT personnel ☐ 2. Transported on ice? 3. Received within holding time? 4. Sample matrix is: Liquid ☒ Sediment ☐
Client personnel ☒ Yes ☒ No ☐ Yes ☒ No ☐ Soil ☐ Other ☐

[illegible]

AMERICAN AQUATIC TESTING, INC.

1105 UNION BLVD.
ALLENTOWN, PA 18103
610 434 9015

Job #: 51-01-67

Client: Rutgers Organics

Address: Salem OH

Phone #: (330) 332-0108

Client Contact: Denny Lane

Sample Return to client ☐

Disposal: Lab disposal ☒

CHAIN OF CUSTODY

Initial Chemistry @ Laboratory							SAMPLE INFORMATION					Toxicity Testing Requested			
Sample #	Temp °C	Dis O ₂	pH	Alk. mg/L	Hard. mg/L	Cl- mg/L	Sample Identification	Sample Type	Sample Volume	Sample Date	Sample Time	Acute	Chronic	Sediment	Other
03	3.5						Outfall 12-12-03	Grab	2 1/2 gal	12-12-03	9:30		X		

Samples were.

1. Collected by AAT personnel ☐ Client personnel ☒ 2. Transported on ice? ☐ Yes ☒ No ☐ 3. Received with in holding time? ☐ Yes ☒ No ☐ 4. Sample matrix is: Liquid ☒ Sediment ☐ Soil ☐ Other ☐

CUSTODY INFORMATION

Sample #	Relinquished by:	Received by:	Date	Time	Relinquished by:	Received for Lab:	Date	Time	Lab Use
03	G.L.W.	Fed ex	12-12-03	10:00	Fed ex	T. Pally	12/13/03	11:00	03947

Special Instructions.

APPENDIX II

OHIO EPA NPDES BIOMONITORING REPORT FORM

Date Created: 5/24/91
Last Revised: 9/23/91

Page 1 of 5

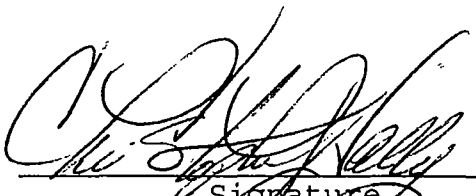
OHIO EPA NPDES BIOMONITORING REPORT FORM

GENERAL INFORMATION

1. Facility Name: Ruetgers-Nease Corporation
Reporting Date: January 05, 2004
2. Address: 1224 Benton Road
Salem, Ohio 44460
3. Ohio EPA Permit Number: Substantive Discharge Criteria
4. Application (NPDES) No. _____
5. Facility Contact: Ralph Pearce 6. Phone No.: (800) 458-3434
7. Consultant/Testing Lab Name: American Aquatic Testing, Inc.
8. Consultant/Lab Contact: Chris Nally 9. Phone No.: (610) 434-9015
10. Receiving Water(s) of Discharge: Unnamed Tributary of the Middle Fork of Middle Creek.
11. Outfall(s) Tested:

	<u>12/08/03</u>	<u>12/10/03</u>	<u>12/12/03</u>
	<u>001</u>	<u>001</u>	<u>001</u>
- Average Daily Flows:
on Day Sampled (gal/day)
12. Is your current Standard Operating Procedure (SOP) Manual on file with Ohio EPA? (Yes/No) No If yes, date submitted: _____.
If no, an SOP that follows Ohio EPA and/or U.S. EPA protocols must be submitted as soon as possible in order to eliminate the need to include this information with every report.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.



Signature
Christopher J. Nally, President

12/31/03
Date

TABLE

Sampling Summary for Chronic Toxicity Tests

Sampling Location & Description	Sample	Sample Collection Beginning MM/DD/Time Ending MM/DD/Time	Ending	Weather/Receiving Stream Conditions
Final Effluent: Processed Water				
Outfall No.: <u>001</u>	1st	12/08/ 1100	N/A	N/A
Type (Grab/Composite): <u>Grab</u>	2nd	12/10/ 0900	N/A	N/A
Volume Collected: <u>2.5-gallon</u>	3rd	12/12/ 0930	N/A	N/A
Upstream Station:				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				
Downstream Station (Near-field):				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				
Downstream Station (Far-field):				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				
Additional Stations (If needed):				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				

TOXICITY TEST CONDITIONS

TABLE

Summary of Toxicity Test Conditions

1. Test Species and Age:	<i>Ceriodaphnia dubia</i> - 2 to 7 hrs old
2. Test Type and Duration:	3 brood Chronic Toxicity Test
3. Test Dates:	December 09 - 15 2003
4. Test Temperature (°C):	25.0°C
5. Light Quality:	340-ft candles
6. Photoperiod:	16 hours light / 8 hours dark
7. Feeding Regime:	0.1 mL <i>Selenastrum</i> and 0.1 mL YCT daily
8. Size of Test Vessel:	30 mL
9. Volume and Depth of Test Solutions:	15 mL / 25 mm
10. No. of Test Organisms per Test Vessel:	One
11. No. of Test Vessels per Test Solution:	Ten
12. Total No. of Test Organisms per Test Solution:	Ten
13. Test Concentrations (as percent by volume effluent):	0%, 1%, 3%, 10%, 30%, and 100%
14. Renewal of Test Solutions:	Daily
15. Dilution and Primary Control Water:	Moderately Hard Reconstituted Water
16. Secondary Control Water:	N/A
17. Aeration? Before/During Test:	None
18. Endpoints Measured:	NOEC, LOEC, TU _c , ChV, LC ₅₀ , IC ₂₅
19. If secondary control water used as diluent due to toxicity in primary control water, indicate number of consecutive tests conducted with alternative diluent:	N/A

ADDITIONAL TOXICITY TEST INFORMATION

1. Submit all raw data and statistical calculations/printouts obtained during the test(s). Data must be presented in tabular form and must include all physical and/or chemical measurements recorded during the tests and sampling (e.g., temperature, conductivity, dissolved oxygen, pH, hardness, alkalinity, etc.).
2. Method(s) used to verify near-field and/or far-field sampling locations must be included if stream testing is required. Maps, sketches, and/or drawings may be used to show locations.

CONCLUSIONS/COMMENTS

Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from your SOP that were necessary for these tests and any recent Standard Reference Toxicant (SRT) results obtained. Do these results agree with previous SRT results? Attach additional pages as needed.

Standard reference Toxicant test:Toxicant: Potassium chlorideDate: 11/24-30/03IC₂₅: 283.8.ppmAverage: 287.5 ppmUpper Limit: 388.7 ppmLower Limit: 186.3 ppmTest value +/- 2 std. Dev.: Yes

Date Created: 5/24/91
Last Revised: 9/23/91

Page 1


OHIO EPA NPDES BIOMONITORING REPORT FORM

GENERAL INFORMATION

1. Facility Name: Ruetgers-Nease Corporation
Reporting Date: January 05, 2004
2. Address: 1224 Benton Road
Salem, Ohio 44460
3. Ohio EPA Permit Number: Substantive Discharge Criteria
4. Application (NPDES) No. _____
5. Facility Contact: Ralph Pearce 6. Phone No.: (800) 458-3434
7. Consultant/Testing Lab Name: American Aquatic Testing, Inc.
8. Consultant/Lab Contact: Chris Nally 9. Phone No.: (610) 434-9015
10. Receiving Water(s) of Discharge: Unnamed Tributary of the Middle Fork of Middle Creek.
11. Outfall(s) Tested:

	<u>12/08/03</u>	<u>12/10/03</u>	<u>12/12/03</u>
	<u>001</u>	<u>001</u>	<u>001</u>
- Average Daily Flows:
on Day Sampled (gal/day)
12. Is your current Standard Operating Procedure (SOP) Manual on file with Ohio EPA? (Yes/No) No If yes, date submitted: _____.
If no, an SOP that follows Ohio EPA and/or U.S. EPA protocols must be submitted as soon as possible in order to eliminate the need to include this information with every report.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.


Signature
Christopher J. Nally, President

12/13/03
Date

TABLE

Sampling Summary for Chronic Toxicity Tests

Sampling Location & Description	Sample	Sample Collection Beginning MM/DD/Time Ending MM/DD/Time	Ending	Weather/Receiving Stream Conditions
Final Effluent: Processed Water				
Outfall No.: <u>001</u>	1st	12/08/ 1100	N/A	N/A
Type (Grab/Composite): <u>Grab</u>	2nd	12/10/ 0900	N/A	N/A
Volume Collected: <u>2.5-gallon</u>	3rd	12/12/ 0930	N/A	N/A
Upstream Station:				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				
Downstream Station (Near-field):				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				
Downstream Station (Far-field):				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				
Additional Stations (If needed):				
Waterbody:	1st	N/A	N/A	N/A
Station No.:	2nd			
Type (Grab/Composite):	3rd			
Volume Collected:				

TOXICITY TEST CONDITIONS

TABLE

Summary of Toxicity Test Conditions

1. Test Species and Age:	<i>Pimephales promelas</i> - < 48-hr old
2. Test Type and Duration:	7-day Chronic Toxicity Test
3. Test Dates:	09 – 16 December 2003
4. Test Temperature (°C):	25.0°C
5. Light Quality:	340-ft candles
6 Photoperiod:	16 hours light / 8 hours dark
7. Feeding Regime:	0.1 mL <i>Artemia</i> nauplii two times daily
8. Size of Test Vessel:	1000 mL
9. Volume and Depth of Test Solutions:	500 mL / 92 mm
10. No. of Test Organisms per Test Vessel:	Ten
11. No. of Test Vessels per Test Solution:	Four
12. Total No. of Test Organisms per Test Solution:	40
13. Test Concentrations (as percent by volume effluent):	0%, 1%, 3%, 10%, 30%, and 100%
14. Renewal of Test Solutions:	Daily
15. Dilution and Primary Control Water:	Moderately Hard Reconstituted Water
16. Secondary Control Water:	N/A
17. Aeration? Before/During Test:	None
18. Endpoints Measured:	NOEC, LOEC, TU _c , ChV, LC ₅₀ , IC ₂₅
19. If secondary control water used as diluent due to toxicity in primary control water, indicate number of consecutive tests conducted with alternative diluent:	N/A

ADDITIONAL TOXICITY TEST INFORMATION

1. Submit all raw data and statistical calculations/printouts obtained during the test(s). Data must be presented in tabular form and must include all physical and/or chemical measurements recorded during the tests and sampling (e.g., temperature, conductivity, dissolved oxygen, pH, hardness, alkalinity, etc.).
2. Method(s) used to verify near-field and/or far-field sampling locations must be included if stream testing is required. Maps, sketches, and/or drawings may be used to show locations.

CONCLUSIONS/COMMENTS

Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviation from your SOP that were necessary for these tests and any recent Standard Reference Toxicant (SRT) results obtained.

Do these results agree with previous SRT results? Attach additional pages as needed.

Standard reference Toxicant test:

Toxicant: Potassium chloride

Date: 12/09 - 16/03

IC₂₅: 588.0 ppm

Average: 566.9 ppm

Upper Limit: 678.3 ppm

Lower Limit: 455.4 ppm

Test value +/- 2 std. Dev.: YES